MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for August, 1900, is based on reports from about 3,097 stations furnished by employees and voluntary observers, classified as follows: regular stations of the Weather Bureau, 158; West Indian service stations, 12; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,562; Army post hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Railway Company, 96; Canadian Meteorological Service, 32; Mexican Telegraph Service, 20; Mexican voluntary stations, 7; Mexican Telegraph Company, 3. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Commander Chapman C. Todd, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. The current number has been put through the press by Prof. Alfred J. Henry, the Editor being absent from the city.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is 157° 30′ or $10^h\ 30^m$ west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

The general atmospheric conditions which attend periods of abnormal heat over the northeastern quarter of the United States prevailed from early in July to the second decade of September, 1900. These conditions are recognized in the distribution of air pressure, as indicated by the barometer, and by a lack of strength and activity on the part of areas of low barometer.

During ten weeks of the summer of 1900 the barometer was persistently high over the Southeastern States and low in the Northwest, and the eastern half of the country was not visited by general storms.

The effect of these prevailing conditions was a stagnation of air over the Northeastern States; and a result of this stagnated condition was that air near the surface of the earth became superheated, since the intensity of the sun's rays was broken neither by extensive cloud areas nor by the presence in the air of any considerable amount of moisture.

Considered as a whole, the month of August, 1900, was the warmest August on record generally from the upper Mississippi Valley over the Lake region, Ohio Valley, and Middle Atlantic States. This high record was accomplished not by individual maximum temperatures which exceeded those previously noted, but by the number of successive days on which the temperature ranged in the nineties. Thus, at Washington, D. C., there were fourteen consecutive days with a maximum temperature of 90° or above, while during the seven-day period—August 6 to 12, inclusive—the daily maximum temperatures did not fall below 96°, and an extreme maximum of 101° was reached. This was the warmest seven-day period ever experienced in Washington, and the records for groups of days at various points were similarly broken throughout the heated area.

The Weather Bureau, in its regular detailed twice-daily forecasts and in special bulletins issued from time to time, announced indicated continuations of high temperature several days in advance, and also temporary breaks in the heat, due to the development of local storms or the passage of weak general disturbances. Finally, on September 12, a special bulletin was issued which definitely announced that the heated period would be permanently broken within the next twenty-four hours. The evidence which furnished a base for this forecast proved trustworthy, and the great mass of heated air which had been practically undisturbed for more than two months was effectually broken up and dispersed by the passage over the Great Lakes and the St. Lawrence Valley of the storm which devastated Galveston, Tex., on September 8. Detailed records of high temperatures registered throughout the heated area are presented under the heading The Hot Weather of August, 1900, in another part of this REVIEW.

No storm warnings were required for the Atlantic and Pacific coasts, the Lake region, and the West Indies during

August, 1900, and special forecasts or warnings other than those relating to the heat were not issued.

AREAS OF HIGH AND LOW PRESSURE.

During the month there were six highs and eight lows which could be charted. (See Charts I and II.) A brief description of their more prominent characteristics is given herewith:

Highs.—All of the highs originated north of the forty-fifth parallel, and three of them, Nos. I, II, and IV, as far east as the eighty-fifth meridian. Nos. I, III, and VI disappeared off the middle Atlantic coast; Nos. II and IV beyond the St. Lawrence Valley, and No. V north of Lake Superior. No. II moved very slowly after reaching the sixtieth meridian, consuming four days in covering a distance of a few hundred miles.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	2, p.m.	48	87	4, p.m.	39	75	1,100	2.0	550	22.9
II	11, a.m.	48	86	17, a.m.	48	54	1,425	2.5	570	23.7
III	15, a.m.	50	108	18, a.m.	43	75	1,780	3.0	593	24.7
IV	18, a.m.	48	86	20, a.m.	49	69	900	2.0	450	18.8
V	19, a.m.	51	114	22, a.m.	48	85	1,400	2.5	560	23.3
VI	26, a.m.	51	120	2, a.m.*	41	70	3,110	7.0	444	18.5
Sums							9,715	19.0	3,167	131.9
Mean of 6 paths							1,619		528	22.0
Mean of 19 days									511	21.3
Low areas.										
I	8, a.m.	46	78	9, p.m.	46	60	900	1.5	600	25.0
II	8, p.m.	51	120	11, p.m.	46	60	2,925	3.0	975	40.6
III	11, p.m.	54	114	14, a.m.	48	85	1,405	2.5	562	23.4
IV	11, p.m.	38	100	14, a.m.	41	74	1,575	2.5	630	26.2
V	13. a.m.	38	100	16, a.m.	48	68	2,175	3.0	725	30.2
VI	19, p.m.	43	100	21, p.m.	35	75	1,650	2.0	825	34.4
VII	20, a.m.	45	64	22, a.m.	48	54	600	2.0	300	12.5
VIII	20, p.m.	51	114	25, a.m.	48	89	1,850	4.5	411	17.1
	23, a.m.	51	114				1,150	2.0	575	24.0
Sums							14,230	23.0	5,603	233.4
Mean of 9 paths							1,581		623	26.0
Mean of 23 days									619	25.8

*September.

After the morning of the 5th the high charted as No. I settled down over the Southern States, and also overspread the Ohio Valley. This high, in combination with the northwestern low, caused an extensive warm wave to set in on the 6th over the entire country east of the Rocky Mountains, and it continued almost without interruption during the remainder of the month over the major portion of this great territory. Over many districts this warm wave had never been equaled for duration and intensity. The high on the Pacific coast persisted until the evening of the 9th with varying intensity, and frequently thereafter, particularly on the north coast.

Lows.—The lows also kept well to the northward in their passage over the country. But one, No. IV, originated south of the fortieth parallel, and but one, No. VI, moved south of that line; both originated in the middle slope. Nos. II, III, V, and VIII originated in the British Northwest Territory west of the one-hundred and tenth meridian. No. II moved almost due eastward, passing into the Atlantic Ocean by way of Cape Breton Island. No. V pursued a very similar course, although somewhat more to the northward. No. III was an offshoot from the depression which persisted during almost the entire month over the Northwest; it moved eastward and was lost to the northeastward of Lake Superior. No. VI was also an offshoot from this depression. No. VIII, in reality, consisted of two separate depressions which originated near to each other in western Alberta, and, after pursuing different paths, converged into one northwest of Lake Superior, and then moved off to the northeastward. No. VII came up from the south Atlantic Ocean. Its first land appearance was on the Nova Scotia coast, whence it moved northeastward, passing out into the ocean by way of St. Johns, N. F.—*H. C. Frankenfield, Forecast Official.*

RIVERS AND FLOODS.

With the advent of the low water season the rivers, with the exception of the upper Mississippi, fell generally throughout the whole country. When compared with the month of August, 1899, it is noticed that this year's stages of the Mississippi River proper were a foot or more higher than last year's, as were also those of the tributary streams to the eastward. The western tributaries were, as a rule, somewhat higher in 1899. The rivers of the Atlantic and Gulf systems were also higher in 1900 than in 1899, while over the Pacific system the reverse was true, but not to a marked degree.

No high stages occurred.

During the month the new Brazos River service in Texas was commenced with two stations in operation, viz, Kopperl and Waco, Tex. Other stations will be added in a short time, and it is believed that in time of future floods this service will, by the issue of timely warnings, prove the means of preserving many lives and much valuable property. The headquarters of this service are at Galveston, Tex.

The highest and lowest water, mean stage, and monthly range at 129 river stations are given in Table XI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Forecast Official.*

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches and temperature in degrees Fahrenheit.

Alabama.—The mean temperature was 81.6°, or 2.2° above normal; the highest was 105°, at Goodwater on the 11th, and the lowest, 62°, at Riverton and Valleyhead on the 1st, at Newton on the 8th, and at Pineapple on the 26th. The average precipitation was 2.89, or 1.74 below normal; the greatest monthly amount, 9.85, occurred at Citronelle, and the least, 0.50, at Pineapple.—*F. P. Chaffee.*

Arizona.—The mean temperature was 80.3°, or 3.7° below normal; the highest was 119°, at Parker on the 1st, and the lowest, 30°, at Strawberry on the 30th. The average precipitation was 1.02, or 1.10 below

normal; the greatest monthly amount, 3.99, occurred at Mount Huachuca, while none fell at a number of stations.—*W. G. Burns.*

Arkansas.—The mean temperature was 81.1°, or 2.3° above normal; the highest was 108°, at Jonesboro on the 21st, and the lowest, 57°, at Pond on the 2d. The average precipitation was 2.95, or 0.15 below normal; the greatest monthly amount, 8.08, occurred at Amity, and least, 0.06, at Arkansas City.—*E. B. Richards.*

California.—The mean temperature was 71.0°, or 3.8° below normal; the highest was 120°, at Volcano Springs on the 2d, and the lowest, 17°, at Bodie on the 20th. The average precipitation was 0.02, or 0.04 below normal; the greatest monthly amount, 1.35, occurred at Yreka, while none fell at about 150 stations.—*Alexander G. McAdie.*

Colorado.—The mean temperature was 67.2°, or about normal; the highest was 109°, at Delta on the 27th, and the lowest, 20°, at Wagonwheel Gap on the 25th. The average precipitation was 0.65, or 1.00 below normal; the greatest monthly amount, 4.59, occurred at Crook, and the least, trace, at several stations.—*F. H. Brandenburg.*

Florida.—The mean temperature was 82.4°, or 0.9° above normal; the highest was 104°, at McClenny on the 20th and at McAlpin on the 23d, and the lowest, 64°, at St. Francis on the 7th. The average precipitation was 4.20, or 2.90 below normal; the greatest monthly amount, 16.05, occurred at Fort Meade, and the least, 0.28, at Merritts Island.—*A. J. Mitchell.*

Georgia.—The mean temperature was 82.3°, or 3.6° above normal, and is the highest mean for any August in the past nine years; the highest was 107°, at Waycross on the 21st and 22d and at Point Peter on the 23d, and the lowest, 56°, at Dahlonega on the 26th. The average precipitation was 2.55, or 3.10 below normal; the greatest monthly amount, 7.37, occurred at Jesup, and the least, 0.66, at Lost Mountain.—*J. B. Marbury.*

Idaho.—The mean temperature was 63.1°, or 2.3° below normal; the highest was 105°, at Hagerman on the 1st, and the lowest, 25°, at Chesterfield on the 15th. The average precipitation was 0.63, or 0.03 above normal; the greatest monthly amount, 3.22, occurred at Murray, and the least, 0. 01, at Downey.—*S. M. Blandford.*

Illinois.—The mean temperature was 79.8°, or 5.2° above normal; the highest was 111°, at St. John on the 21st, and the lowest, 54°, at La Grange on the 1st and at Lanark on the 30th. The month has been remarkable both for its high average temperature and for the unbroken period of warm weather. The average precipitation was 4.06, or 1.14 above normal; the greatest monthly amount, 11.17, occurred at Sycamore, and the least, 0.27, at Cairo.—*M. E. Blystone.*

Indiana.—The mean temperature was 78.7°, or 6.0° above normal; the highest was 102°, at Crawfordsville on the 18th, at Washington on the 19th, and at Boonville on the 21st, and the lowest, 50°, at La Porte on the 17th. The month was the warmest August on record. The average precipitation was 3.41, or 0.38 above normal; the greatest monthly amount, 8.36, occurred at Anderson, and the least, 0.95, at Evansville.—*C. F. R. Wappenhans.*

Iowa.—The mean temperature was 77.4°, or 6.3° above normal, and is the highest mean for August on record; the highest was 103°, at Wapello on the 3d and 5th, and the lowest, 44°, at Sheldon on the 28th. The average precipitation was 4.65, or 1.58 above normal; the greatest monthly amount, 10.43, occurred at Scranton, and the least, 1.26, at West Union.—*J. R. Sage, Director; G. M. Chappel, Assistant.*

Kansas.—The mean temperature was 81.0°, or 4.8° above normal, and is the warmest August on record; the highest was 110°, at Phillipsburg and Eureka Ranch on the 21st, and the lowest, 47°, at Coolidge on the 24th. The average precipitation was 2.25, or 0.71 below normal; the greatest monthly amount, 9.05, occurred at Fanning, and the least, trace, at Ulysses.—*T. B. Jennings.*

Kentucky.—The mean temperature was 80.4°, or 3.9° above normal; the records of the Louisville office, covering twenty-nine years, show that the month was the hottest ever experienced since the establishment of the Weather Bureau; the highest was 104°, at Paducah on the 21st, and the lowest, 52°, at Vanceburg on the 2d. The average precipitation was 2.74, or 0.39 below normal; the greatest monthly amount, 6.81, occurred at Pikeville, and the least, 0.05, at Princeton.—*H. B. Hersey.*

Louisiana.—The mean temperature was 81.4°, or 0.4° above normal; the highest was 100°, at several stations on different dates, and the lowest, 60°, at Farmerville on the 3d and at Minden on the 28th. The average precipitation was 4.59, or 0.68 below normal; the greatest monthly amount, 12.65, occurred at New Iberia, and the least, 1.06, at Minden.—*W. T. Blythe.*

Maryland and Delaware.—The mean temperature was 78.0°, or 4.5° above normal; it was the warmest August in Baltimore since the establishment of the Weather Bureau, thirty years ago; the highest was 104°, at Millsboro, Del., on the 13th, and the lowest, 41°, at Deer-park, Md., on the 2d. The average precipitation was 3.04, or 0.41 below normal; the greatest monthly amount, 6.77, occurred at Solomons, Md., and the least, 0.85, at Laurel, Md.—*Oliver L. Fassig.*

Michigan.—The mean temperature was 72.4°, or 5.9° above normal; it was the warmest August on record; the highest was 100°, at Owosso on the 4th and at Harbor Beach on the 5th, and the lowest, 32°, at Humboldt on the 30th. The average precipitation was 3.81, or 1.39 above normal; the greatest monthly amount, 8.31, occurred at South Haven, and the least, 1.10, at Northport.—*C. F. Schneider.*

Minnesota.—The mean temperature was 74.3°, or 6.3° above normal; the highest was 103°, at St. Cloud on the 3d, and the lowest, 30°, at New Folden on the 28th. The average precipitation was 6.44, or 3.02 above normal; the greatest monthly amount, 16.52, occurred at Alexandria, and the least, 1.63, at St. Charles.—*T. S. Outram.*

Mississippi.—The mean temperature was 81.8°, or 1.5 above normal; the highest was 103°, at Agricultural College on the 2d, and the lowest, 60°, at Fayette on the 31st. The average precipitation was 2.17, or 2.45 below normal; the greatest monthly amount, 8.07, occurred at Pearlington, and the least, 0.12, at Vicksburg.—*W. S. Belden.*

Missouri.—The mean temperature was 80.3°, or 4.7 above normal, and is the highest August mean recorded during the past 19 years; the highest was 105°, at Appleton City, Edwards, Cook Station, and Sikeston on the 21st, and the lowest, 52°, at Liberty and Pickering on the 26th. The average precipitation was 3.52, or 0.38 above normal; the greatest monthly amount, 8.37, occurred at Rockport, and the least, 0.34, at Sikeston.—*A. E. Hackett.*

Montana.—The mean temperature was 63.2°, or 1.8° below normal; the highest was 111°, at Glendive on the 1st, and the lowest, 15°, at Dupuyer on the 25th. The average precipitation was 1.58, or 0.88 above normal; the greatest monthly amount, 4.77, occurred at Wibaux, while none fell at Red Lodge.—*E. J. Glass.*

Nebraska.—The mean temperature was 77.2°, or 4.3° above normal; the highest was 109°, at Beaver on the 17th, and the lowest, 38°, at Camp Clarke on the 25th. The average precipitation was 3.46, or 0.83 above normal; the greatest monthly amount, 14.73, occurred at Nemaha, and the least, 0.23, at Seneca.—*G. A. Loveland.*

Nevada.—The mean temperature was 66.6°, or 5.4° below normal; the highest was 110°, at Las Vegas on the 4th, and the lowest, 30°, at Empire Ranch on the 18th. The average precipitation was 0.04, or 0.27 below normal; the greatest monthly amount, 0.25, occurred at Palmetto, while none fell at several stations.—*J. H. Smith.*

New England.—The mean temperature was 69.1°, or 2.0° above normal; the highest was 101°, at Waterbury, Conn., on the 11th, and the lowest, 34°, at Berlin Mills, N. H., on the 4th. The average precipitation was 2.78, or 1.42 below normal; the greatest monthly amount, 5.43, occurred at Manchester, Vt., and the least, 0.86, at Colchester, Conn.—*J. W. Smith.*

New Jersey.—The mean temperature was 76.3°, or 3.8° above normal; the highest was 104°, at Salem on the 11th and at Vineland on the 12th, and the lowest, 41°, at Charlotteburg on the 4th. The average precipitation was 2.68, or 1.53 below normal; the greatest monthly amount, 4.56, occurred at Englewood, and the least, 0.70, at Atlantic City.—*E. W. McGann.*

New Mexico.—The mean temperature was 71.6°, or about normal; the highest was 102°, at Los Lunas on the 6th, at Lyons Ranch on the 13th, and at Mesilla Park on the 14th, and the lowest, 30°, at Winsors on the 13th and 27th. The average precipitation was 1.39, or 0.59 below normal; the greatest monthly amount, 5.35, occurred at Springer, and the least, 0.03, at Hillsboro.—*R. M. Hardinge.*

New York.—The mean temperature was 71.4°, or 4.8° above normal; the highest was 103°, at Catskill on the 11th, and the lowest, 33°, at Bolivar on the 2d. The average precipitation was 3.28, or 0.97 below normal; the greatest monthly amount, 7.47, occurred at Gabriels, and the least, 0.67, at Binghamton.—*R. G. Allen.*

North Carolina.—The mean temperature was 80.2°, or 4.2° above normal; the highest was 106°, at Southern Pines on the 10th, and the lowest, 48°, at Linville on the 4th. The average precipitation was 3.00, or 2.80 below normal; the greatest monthly amount, 7.26, occurred at Sloan, and the least, 0.52, at Biltmore.—*C. F. von Herrmann.*

North Dakota.—The mean temperature was 70.4°, or about 5.0° above normal; the highest was 114°, at Glenullin and Medora on the 1st, and the lowest, 33°, at McKinney and Towner on the 28th. The average precipitation was 5.06, or about 3.50 above normal; and is the greatest rainfall for any August on record. The greatest monthly amount, 9.48, occurred at Forman, and the least, 2.17, at Steele.—*B. H. Bronson.*

Ohio.—The mean temperature was 76.3°, or 5.0° above normal, and is the highest August mean on record; the highest was 103°, at Hedges on the 6th and at Thurman on the 10th, and the lowest, 40°, at Vermillion on the 4th. The average precipitation was 3.68, or 0.77 above normal; the greatest monthly amount, 8.71, occurred at Warsaw, and the least, 1.15, at Orangeville.—*J. Warren Smith.*

Oklahoma and Indian Territories.—The mean temperature was 82.7°, or 1.8° above normal; the highest was 109°, at Prudence on the 27th, and the lowest, 55°, at Bengal on the 2d. The average precipitation was 1.75, or 1.16 below normal; the greatest monthly amount, 5.70, occurred at Sac and Fox Agency; and the least, 0.33, at Jenkins.—*C. M. Strong.*

Oregon.—The mean temperature was 62.8°, or 3.1° below normal; the highest was 99°, at Arlington on the 2d, and the lowest, 27°, at Silverlake on the 9th. The average precipitation was 0.64, or about normal; the greatest monthly amount, 2.96, occurred at Nehalem, while none fell at Comstock and Merlin.—*E. A. Beals.*

Pennsylvania.—The mean temperature was 75.0°, or 5.1° above normal; the highest was 103°, at Athens on the 10th and at Lebanon on the 11th, and the lowest, 38°, at Lawrenceville on the 1st and at Du-

shore and Smethport on the 2d. The average precipitation was 3.33, or 0.64 below normal; the greatest monthly amount, 5.78, occurred at West Chester, and the least, 0.84, at Pittsburg.—*L. M. Dey.*

South Carolina.—The mean temperature was 83.0°, or 4.4° above normal; the highest was 106°, at Longshore on the 8th and at Columbia on the 20th, and the lowest, 60°, at Holland on the 25th. The average precipitation was 2.13, or 4.18 below normal; the greatest monthly amount, 5.55, occurred at Yemassee, and the least, 0.27, at Cheraw. The month of August was noteworthy in respect both to temperature and precipitation, having been the hottest August on record as well as the driest.—*J. W. Bauer.*

South Dakota.—The mean temperature was 75.5°, or about 5.0° above normal; the highest was 115°, at Cherry Creek on the 1st, and the lowest, 40°, at Ashcroft on the 26th. The average precipitation was 4.26, or 2.05 above normal; the greatest monthly amount, 10.35, occurred at Clark, and the least, 0.90, at Interior.—*S. W. Glenn.*

Tennessee.—The mean temperature was 79.7°, or 3.2° above normal; the highest was 104°, at Tracy City on the 11th, and the lowest, 51°, at Erasmus on the 1st. August was one of the hottest months ever experienced in Tennessee. For persistent, abnormally high temperature the month has not been surpassed since records began eighteen years ago. The average precipitation was 2.00, or 1.23 below normal; the greatest monthly amount, 4.70, occurred at Silverlake, and the least, 0.40, at Springfield.—*H. C. Bate.*

Texas.—The mean temperature, determined by comparison of 42 stations distributed throughout the State, was 0.8° below the normal. Nearly normal conditions prevailed, except over east Texas, the east portion of north Texas, and the central and east portions of the coast districts, where there was a general deficiency, ranging from 1.0° to 4.9°, with the greatest in the vicinity of Corpus Christi. The highest was 106°, at Colorado City on the 24th and 25th, and the lowest, 54°, at Alpine on the 1st. The average precipitation, determined by comparison of 52 stations distributed throughout the State, was 0.81 above normal; there was a general deficiency ranging from 1.00 to 3.03 over north, central, and west Texas and the extreme west portion of the coast districts, while there was a general excess elsewhere, with the greatest over the southeastern portion of the State; the greatest monthly amount, 12.63, occurred at Brazoria, while none fell at Fort Ringgold.—*I. M. Cline.*

Utah.—The mean temperature was 68.5°, or 1.9° below normal; the highest was 109°, at Hite on the 2d, and the lowest, 26°, at Henefer on the 22d and at Loa on the 31st. The average precipitation was 0.34, or 0.31 below normal; the greatest monthly amount, 1.11, occurred at Wellington, while none fell at Cisco and Kanab.—*L. H. Murdoch.*

Virginia.—The mean temperature was 79.4°, or 4.5° above normal, and was the hottest month on record; the highest was 107°, at Columbia on the 12th, and the lowest, 47°, at Burkes Garden on the 2d and 5th. The average precipitation was 2.12, or 1.69 below normal; the greatest monthly amount, 5.23, occurred at Sunbeam, and the least, 0.13, at Danville.—*E. A. Evans.*

Washington.—The mean temperature was 62.0°, or 3.3° below normal; the highest was 103°, at Hooper on the 14th, and the lowest, 28°, at Republic on the 26th. The average precipitation was 0.94, or 0.20 above normal; the greatest monthly amount, 4.05, occurred at Clearwater, and the least, trace, at Bridgeport.—*G. N. Salisbury.*

West Virginia.—The mean temperature was 76.0°, or 3.1° above normal; the highest was 100°, at several stations on different dates, and the lowest, 45°, at Cairo on the 1st. The average precipitation was 3.15, or 0.40 below normal; the greatest monthly amount, 7.20, occurred at Terra Alta, and the least, 1.03, at Burlington.—*E. C. Vose.*

Wisconsin.—The mean temperature was 74.4°, or 5.7° above normal; the month was without exception the warmest August on record; at Milwaukee the mean was 3° higher than that of any previous August for the past thirty years, and at St. Paul it was 4° higher than any previous record for the same length of time; the highest was 103°, at West Bend on the 6th, and the lowest, 37°, at Florence on the 3d. The average precipitation was 4.33, or 1.28 above normal; the greatest monthly amount, 9.43, occurred at Grantsburg, and the least, 1.32, at Stevens Point.—*W. M. Wilson.*

Wyoming.—The mean temperature was 65.6°, or about normal; the highest was 108°, at Bittercreek on the 19th, and the lowest, 23°, at Daniel on the 17th. The average precipitation was 0.37, or about 0.40 below normal; the greatest monthly amount, 1.15, occurred at Centennial, while none fell at Hyattville.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

DEATH OF MR. T. J. FLYNN.

It is with much regret that we have to announce the death of Mr. T. J. Flynn of the Weather Bureau, who died August 4, 1900, after an illness which lasted several weeks. Mr. Flynn was born December 12, 1842, in Ireland; he served valiantly in the civil war and was a respected member of the Grand Army of the Republic. He connected himself with the weather service of the United States Signal Office in October, 1883, as a lithographer, and served faithfully until death ended a useful career. Mr. Flynn was energetic and always at his post, courteous and ever ready to assist in an emergency.

The Weather Bureau loses a good and conscientious employee.—*L. W.*

NILE FLOODS AND MONSOON RAINS.

Editorial in Nature, August 23, 1900, Vol. LXII, p. 391.

The practice or science of weather forecasting will evidently proceed on two very different lines, according to the relative importance of local or seasonal changes in the general meteorological conditions, and whether the prediction has reference to a long or short period. The machinery employed, in cases where the forecast aims at great minuteness over a small area, consists mainly of the synoptical chart, based on information supplied by rapid telegraphic communication, and in the hands of experts this means probably proves sufficient, and furnishes a fair percentage of accurate predictions. But in the more difficult, as certainly in the more important, problem of predicting the weather some time in advance and over a considerable area, a problem which regularly recurs in the monsoon forecast for India, one must evidently depend upon the more general physical conditions that are produced by the motions of the earth and the distribution of land and water on its surface. These causes, it is true, are always operative, and to a certain extent meteorological phenomena, broadly considered, must be periodic in their main features. The causes of deviation from periodicity, and the extent of the area affected by such abnormal conditions, are problems which the professional meteorologist has to encounter, and it is to be feared with insufficient means. But it seems not unlikely that, in proportion as the problem becomes more general, by bringing wider areas within the scope of the discussion, the prospects of greater success will become more assured; and it can not but be considered a most significant feature that indications are not wanting that in the two considerable areas, India and Egypt, the respective climates betray peculiarities which may either react upon each other, or the origin of which must be sought in a common source.

From two independent investigations come attempts to trace a connection between the amount of the Nile floods and the abundance or deficiency of the southwest monsoon rainfall in India. Mr. Willcocks[1] broached this subject in a paper read before the Meteorological Congress at the World's Expo-

[1] The above reference to the paper by Mr. W. Willcocks, Civil Engineer in charge of works on the Nile, written in 1893, should perhaps be supplemented by the statement that the short reference by him to the fact "that famine years in India are generally years of low flood in Egypt" is apparently but a repetition of a generalization that we owe, primarily to Mr. Morgan Brierly of Port Said, who in Nature, October, 1881, XXIV, p. 532, published a table showing the rainfall at Bombay, the height of the Nile, and also Wolf's sunspot numbers for the years 1849–1880. He says: "The floods of the Nile are mainly caused by the heavy rains which descend upon the high table-lands of Abyssinia. * * * The great southwest monsoon which sweeps over the Indian Ocean in the summer months produces a like effect in both cases." Subsequently the Indian meteorologists have been able to show that when the great southeast trade of the southern Indian Ocean crosses the equator and becomes the southwest monsoon of India, it impinges upon the high lands of Africa and produces in that region a rain that constitutes a very important portion of the annual flood in the Nile. According as the trade is deflected to the east or to the west and according as it is stronger or feebler, there are resulting variations in the African and Indian rainfall, so that there is some connection between the floods of the Nile and the famines of India.—ED.

sition in Chicago, Ill., and there suggested that famine years in India are generally years of low flood in Egypt, and that when the summer supply of the Nile had been deficient and late, a high flood might well follow, since the drought in the valley of the White Nile must create a powerful draught[2] from the Indian Ocean or the Arabian Sea, a district in which is to be sought the origin of the massive currents of the southwest monsoon. Unfortunately, any exact data to establish this interesting connection are not forthcoming, and can hardly be expected, since the Nile is supplied from two distinct sources, and it is impossible to separate and trace the effect of either contribution. Of the great lakes of central-east Africa which constitute a reservoir for the Nile waters, little is known as to the variation in their relative height due to the rainfall in their vicinity, which lasts from March to December. At Port Alice, on the Victoria Nyanza, and at some other stations, observations, more or less regular, are made of the variation in the heights of the water, but in the absence of any common datum level these heights are referred to that of the mean lake. Much surveying work and long continued observations will have to be made before these scanty statistics can be turned to full account.

Of the second source of supply to the Nile, viz, the flood waters in the Atbara, the Blue Nile, and other rivers, fed during the rainy season from June to November, we know practically nothing as to their amount. But it is this seasonal supply which is probably the greatest factor in causing variations in the Nile floods, and where a connection with the causes of the Indian rains is closest. Whatever influences the flow of the monsoon current from the equator northward over the Indian seas toward the heated regions of India and Malay Peninsula, must have a proportional effect on east Africa and south Arabia. With heavy monsoon rains, therefore, it is not unlikely that the contributing rivers add materially to the volume of the Nile waters, but it is not altogether a trustworthy guide to gage the amount of water that enters the Nile by measuring the quantity that passes a particular station. Much water enters the Nile that never contributes to the irrigation of Egyptian lands. Of the amount lost by evaporation no account can be taken, but a source of greater error arises from the peculiar flatness of the ground about Shambé, which forms the apex of the swamp delta. Here the Nile can spread its waters over a large area, and practically lose itself as a river among the beds of reeds and rushes which form a veritable swamp. Engineering works, already projected or actually begun, aim at clearing some or other of the feeding streams, such as the Bahr el Gebel or the Bahr el Zarab, and the effect must be, when completed, to break the continuity of such observations as have been made. Other sources of error are to be found in the varying quantity and character of the "sudd" which may interrupt the flow or diminish the amount of evaporation, but without insisting on too much accuracy there exists a certain amount of evidence that the two great agricultural countries of Egypt and India are likely to be prosperous together or to suffer in common.

Having mentioned some of the causes which prevent a rigorous comparison between the Nile floods and the Indian rainfall, one is not unprepared to find some discrepancies, but Mr. Eliot certainly does not overestimate his case when he contends that these tables indicate that in at least four out of five seasons in which there was a partial failure of the rains in India there was a low Nile, and that generally the two countries are similarly affected by the meteorological conditions and the variations of those conditions. The causes of these variations are obscure, and at present very imperfectly recognized, for a complete solution, as Mr. Eliot points out, demands a much more intimate knowledge of the atmospheric conditions that prevail over a large area. The meteorology of Australia and the Indian Ocean, and perhaps also of the Antarctic Ocean, must be linked to that of the Indian monsoon area "before it will be possible to ascertain the missing factors necessary to complete the explanations of the relations between the chief features of the monsoon currents and rainfall of India and the antecedent and concurrent conditions in the Indian area and the regions to the south." To trace and anticipate the effect of weather conditions over the area that embraces both India and Egypt, in which our interests are so largely involved, should stimulate further inquiry, with the result of placing at the command of science additional means for dealing with so grave a problem.

Mr. Eliot, the meteorological reporter to the government of India, in his recent forecast of the probable character of the southwest monsoon rains of 1900, not only fully indorses Mr. Willcocks's statement, but adds some statistics which render a connection highly probable. Omitting a few local particulars from Mr. Eliot's statistical summary, the broad features are shown in the following table.

Year.	Departure of mean annual Indian rainfall from normal, in inches.	Character of Nile flood.
1876	−4.49	Good, high flood.
1877	−4.28	Poor flood.
1891	−3.54	Late flood.
1896	−4.83	Low Nile.
1899	−11.14	Very low flood; lowest of century.

The years of excess of Indian rainfall tell a similar tale even more distinctly.

Year.	Rainfall departure, in inches.	Character of Nile flood.
1878	+6.34	Very severe flood; banks of river carried away in October.
1886	+3.02	High flood.
1892	+5.09	Very high and late flood.
1893	+9.07	High flood.
1894	+6.47	High flood.

METEOROLOGICAL OBSERVATIONS DURING THE BURNING OF THE PLANT OF THE STANDARD OIL COMPANY AT BAYONNE, N. J., JULY 5, 6, AND 7, 1900.

By W. H. Mitchell, Secretary of the Bayonne Kite Corps.

A little before midnight on July 4, a heavy thunderstorm broke over Bayonne, the rain coming down in torrents flooding the streets, as the sewers were incapable of draining the sudden downpour. The lightning was the most vivid witnessed here this year. At 12:15 a. m., on the 5th, came a blinding flash that, to the surprise of those who saw it, continued to illuminate the sky. The crash of the thunder that followed was augmented by an explosion that shook every house in the city, and it was difficult to distinguish which was thunder and explosion, so simultaneously did the reports take place.

Almost immediately the special fire whistles of the Standard and Tide Water Oil companies called the day men of both companies to the works, and the general alarm of the Bayonne fire department followed, calling out six steamers, eight hose carriages, two trucks, and 450 men, of whom some 300 responded.

The writer, being a member of the department, responded at once, arriving on the scene at 12:35. The officers of the oil company and the fire department at once realized that

[2] The indraught due to such drought must be inappreciable. A drought in the valley of the White Nile is the result of the cessation of the inflow of air from the Indian Ocean.—Ed.

they had a fight on their hands that would last, not for hours, but for days.

The storm that was raging at the outbreak of the fire, with its thickset clouds, the heavy, black smoke from the burning oils, at the time principally crude, with the darkness of the night and the flood of rain lit up by the brilliant flames, made a scene seldom witnessed.

The flames, drawn by the increasing draught of the fire, rose several hundred feet in the air, while large quantities of gas generated in the smoke column would every few minutes take fire and apparently add to the altitude of the flames.

The officer who turned in the alarm for the department told the writer that, after striking the two large tanks in the oil yard, the lightning appeared to travel along some pipes that ran near to a two-story frame building on the north and opposite side of East Twenty-second street, setting fire to this as well.

When daylight arrived, it having cleared before dawn, the true magnitude of the fire could be observed, but the great height of the smoke column could not be appreciated except from a distance.

At this time, 7 a. m., there was apparently but little wind for the smoke rose almost vertical and spread out into a huge umbrella-shaped cloud whose inky blackness is hard to appreciate unless one is familiar with oil fires, the form of the cloud indicating but little wind aloft.

That the air on the surface was drawn toward the center of the burning district is shown from the fact that the vanes on the flag pole of public school No. 5 and Enterprise Hose Company No. 1 were showing a northwest wind, these buildings being about one thousand feet from the fire. The vanes on two churches still further to the northwest told the same story. The "telltales" on masts of vessels at the tide water wharfs, one-half mile southwest of fire, indicated a southwest breeze.

The true wind seems to have been almost due north at this time. It was impossible to get an observation to the eastward, but I feel positive that a half mile from shore a vane would have pointed to the eastward.

Ever since the publication by Professor Fergusson, of the Blue Hill (Mass.) Observatory, describing the formation of cumulus clouds above large conflagrations, the members of the Bayonne Kite Corps have been waiting for a chance to observe the same phenomena, knowing that sooner or later the opportunity would be afforded by a really big fire in this vicinity. At 10 a. m. on the 5th, three tanks exploded in succession, two being on the opposite side of the street (East Twenty-second). The explosion drove every one within 300 feet still farther away for the moment, yet men working within 50 feet escaped without burns. The flames swept directly over No. 2 engine, which was at once abandoned, but was immediately rescued by members of Nos. 3 and 4.

Immediately after this triple explosion a whirlwind was formed not less than 300 feet in diameter where it touched the earth. The suction force of this whirl lifted not only scrap paper, but small pieces of wood and empty tin cans, which could be seen high in the air till they were lost to sight in the smoke and probably dropped afterwards in the fire. The duration of this whirl was probably not over five minutes.

The writer was excused at noon on the 5th, after twelve hours duty, to go home for rest and refreshment, after which he took an observation to ascertain the altitude of the smoke column above the kite station ($1\frac{1}{4}$ mile distant from fire, as shown by the charts of the Hydrographic Office), by triangulation,[1] obtaining the very steep angles of 42° 15′ and 41° 15′, with a base line of 528 feet, showing that the smoke column was over 13,000 (13,411) feet high.

It was then, 3 p. m. of the 5th, that I noticed that the white clouds were forming on the top of the smoke column, and several photographs were taken.[2] An idea of the immense size of the column of smoke can be better understood from the fact that it was found impossible with a 4 by 5 camera to get the entire cloud of smoke on the plate.[3]

These photographs show the large white fleece-like clouds resting on the top of the smoke column that did not disappear for the next two days. Leaving instructions to have several more photos taken from various points in the neighborhood of the kite station (East Fourth street and Lexington avenue), the writer returned to the fire. At 9 p. m. he was again excused, as only the hose manned by the oil company's employees engine crews were needed.

At 10:30 p. m. of the 5th, a tank containing what is known to the oil trade as "gas oil," exploded. The writer had but just arrived home from the fire. The force of the explosion shot the gas not less than 3,000 feet into the air; the illumination was so bright that a newspaper could be read three miles away. The heat was distinctly felt by the writer at one and one-quarter miles, and Mr. Willard W. Hotchkin and Mr. Henry L. Allen, of the corps, report noting the heat from a point half a mile farther away. Those in the immediate vicinity of the burning tanks, but not too close, did not feel the heat as much as those who were at a greater distance.

All day of the 6th the smoke column floated at about the same altitude as on the 5th, but during the morning hours the white clouds could not be observed from the writer's point of view (to westward), but as soon as the sun had passed meridian they again became visible and continued so till sundown.

About 7:30 p. m. on the 6th, it being the second day of the fire, a thunderstorm arose in the northwest, being preceded by a high wind of hurricane force. This wind knocked the smoke column over, carrying it well inland on Staten Island, crossing the Kill van Kull, on which during this storm navigation must have been more dangerous than in the densest fogs. This zone of smoke, where it crossed the Kill van Kull, was not less than a half-mile in width, and was perceptible at Richmond five and one-half miles away. It could not rise at its greatest, more than 200 feet, while at the fire it swept horizontally to the southward.

The rain came down in torrents for a half hour, after which it cleared, and the illumination of the preceding night was continued.

Daylight on Saturday, the 7th, revealed the column of smoke still floating, apparently as high as on the two preceding days.

By noon the fire had been so confined that the Bayonne fire department was dismissed after fifty-six hours continuous duty. To observers the great column of smoke indicated that the fire was still raging with unabated fury, but this smoke came from one huge tank of solid parafine wax, which was allowed to burn itself out, which it did about 5 p. m.; and about 6:30 p. m. it again clouded up and another thunderstorm broke with the same violence as on the preceding evening. However it did not have as much smoke to play with, and blew the flames only over the burned district.

On Sunday, the 8th, no unusual smoke was visible from our kite station at Bergen Point.

On Monday, the 9th, while cleaning up the debris, the

[1] In a separate letter Dr. Mitchell explains that by means of quadrants held in the hand and with plain sights the two observers at 528 feet distant simultaneously observed the vertical angles 42° 15′ and 41° 15′, whence the altitude of the cloud is as given by him. The same method is used in determining the altitude of the Bayonne kites. The observed angular elevations are probably accurate to within 15′ of arc.—ED.

[2] Unfortunately these photographs do not furnish satisfactory half tones and are therefore not reproduced.—ED.

[3] Camera used was a Ray No. 1 Bausch and Lomb rapid rectilinear lens that cuts forty degrees sharp to corners of plate, diaphragm No. 16, focal length of lens $5\frac{1}{4}$ inches.

workmen uncovered a quantity of oil, and the flames broke out, forming a smoke column some 300 feet high that hung over the ruins all that day. The yard men kept streams on the ruins till the 12th.

It must be observed that these tanks were, most of them, 90 feet in diameter, 35 feet high, and contained about 30,000 barrels each of crude, refined oil, gasoline, solid wax, and tar, respectively, in all 16 were destroyed, with other property.

There seems to be more than one lesson to be taught by these large conflagrations. From the study of the meteorological disturbances in the atmosphere while such large quantities of heated air and gases are ascending for several days without cessation, we learn:

1. The surface winds are drawn toward the center of such a fire for a distance of over one-half mile, as was shown by all vanes pointing away from it within that distance.

2. That there is a limit to which smoke will ascend even when carried up by heated air and gases, as shown by the way it spread out into the umbrella-like form.

3. That Professor Fergusson's observation[4] that cumulus clouds are formed was proven in that except for those over the smoke column the sky was mostly cloudless, while at times the smoke was crested with them.

4. What influence did the fire exert on the atmosphere? Was it responsible for the two local thundershowers that took place on Friday and Saturday at about the same hour—7:30 and 6:30 p. m.

The following data is furnished by Mr. Willard W. Hotchkin, Volunteer Observer at the Bergen Point Station, N. J. Weather Service:

Date.	Barometer.		Thermometer.		Hygroscope.		Rainfall.		Wind direction and velocity.	
	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A.M	P.M.	P. M.	
1900.	*Inches*	*Inches*	°	°		%				
July 4	29.98*	....	....	71*	....	95*	......	1.20	nw.	18
5	30.10	30.00	74	74	....	76	......	.03	sw.	8
6	29.95	29.90	75	74	....	90	......	.54	sse.	Light.
7	29.90	29.90	79	73	....	82	......	.06	sw.	Light.

* On July 4, midnight. All other records are taken at 7:30 a. m. and 7:30 p. m.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. Phillips, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Nature. London. Vol. 62.
Darrrison, Charles. The Distance to which the Firing of Heavy Guns is Heard. P. 377.

Nature. London. Vol. 62.
Hughes, T. McK. Snowdrifts on Ingleboro in July. P. 389.
—— Nile Floods and Monsoon Rains. P. 391.

Nature. London. Vol. 62.
Halm, J. Latitude Variation; Earth Magnetism and Solar Activity. P. 460.

Symons's Meteorological Magazine. London. Vol. 35.
Wilson, Albert. The Cloud-burst of Rombald's Moor. P. 97.

Annalen der Physik Leipzig. Vierte Folge.
Ebert, H. and Hoffmann, B. A. Elektricitätserregung in flüssiger Luft. P. 706.

Annuaire de la Société Météorologique de France. 47me année.
Raulin. V. Observations d'évaporation dans l'Empire russe. P. 181.
Coeurdevache. Evaporation suivant la température, l'état hygrométrique et la vitesse du vent. P. 186.

Popular Science Monthly. New York. Vol. 57.
Lucas, Frederick A. Birds as Flying Machines. P. 473.
Groff, George G. Conquest of the Tropics. P. 540.

Deutsche Mechaniker-Zeitung. Beiblatt zur Zeitschrift fur Instrumentkunde. Berlin.
Fischer, Karl T. Ein neues Barometer. [From Physikal. Zeitschr.] P. 127.

La Géographie. Paris. 1900.
—— La météorologie en Roumanie. P. 131.

Himmel und Erde. Berlin. 12 *Jarg.*
Rubner, Professor. Kampf um die Gesundheit im XIX Jahrhundert. (Fortsetzung) Wärmverhältnisse. P. 504.

Journal of the Western Society of Engineers. Chicago. Vol. 5.
Seddon, James A. Reservoirs and the control of the lower Mississippi. P. 259.

Philosophical Magazine. London. Vol. 50.
Stevenson, J. Chemical and Geological History of the Atmosphere. P. 312.

Memorias y Revista de la Sociedad Cientifica "Antonio Alzate." Mexico. Tomo 14.
Moreno y Anda. L'Insolation dans nos Climats. P. 265.
Descroix, L. Sur la discussion mathématique des séries d'observations météorologiques. P. 295.

Gaea. Leipzig. 34 *Jahrg.*
Reinicke. Vergleichung der Falb'schen Prognosen mit dem in Deutschland thatsächlich eingetreten Wetter im meteorologischen Jahre 1898-1899. P. 606.
—— Der erste Aufstieg des Zappelinschen Luftschiffes. P. 615.

Das Wetter. Berlin. 17 *Jahrg.*
Assman, R. Aus dem Aëronautischen Observatorium des königl. meteorologischen Instituts. (Schluss.) P. 169.

Scientific American. New York. Vol. 83.
Michaud, G. The Climate of our New Possessions [Cuba, Porto Rico, and the Philippines]. P. 171.

La Nature. Paris. 28me Année.
Derome, J. Les Progrès de la Télégraphie sans Fils. P. 242.

Nederlandsch Tijdschrift voor Meteorologie. 1 *Jaargang.*
Buijsman, M. Het klimaat en de plantengroei van Canada. P. 33.
Nell, Chr. A. C. Twee Merkwaardige Halo's. P. 39.
Kassner, C. Uitkomst van Waarneminger over Golf-Wolken. P. 41. [From Met. Zeit. 1900.]
Nell, Chr. A. C. Hoe Ver Kan Men den Donder Hooren? P. 45.
Monne, A. J. Eeen Wolkhoos. P. 46.
Red, N. T. v. M. Waargenomen Kapvorming Bij Cumulus. P. 47.
—— Hagel te Congo. P. 47.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologic-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletin Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the Monthly Weather Review since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for August, 1900.

Stations.	Altitude.	Mean barometer.	Temperature. Max.	Temperature. Min.	Temperature. Mean.	Relative humidity.	Precipitation.	Prevailing direction. Wind.	Prevailing direction. Cloud.
	Feet.	*Inch.*	° *F.*	° *F.*	° *F.*	%	*Inch.*		
Arteaga (Coahuila)	....	......	92.3	64.4	75.9	......	......	....	....
Durango (Seminario)	6,243	24 09	89.6	50.9	68.9	62	1.60	e, sw.	e.
El Labrador (Coah'a)	....	....	84.2	61.7	70.5	......	......	....	....
Gran Cepeda (Coah'a)	....	....	95.9	60.8	73.9	......	......	....	....
Leon (Guanajuato)	5,934	24.35	83.5	55.8	67.3	74	7.15	s.	e.
Mazatlan	25	29.89	91.4	72.7	85.1	73	2.01	nw.	ne.
Mexico (Obs. Cent.)	7,472	23.10	78.1	52.7	63.0	68	3.66	n.	ne.
Morelia (Seminario)	6,401	24.03	76.8	55.2	64.4	76	3.32	sw.	e.
Parras (Coahuila)	3,986	....	91.8	67.1	75.7	......	......	....	....
Puebla (Col. Cat.)	7,112	23.27	80.2	49.1	67.3	78	6.66	ene.	ne.
Saltillo (Col. S. Juan)	5,399	24.82	87.1	58.6	70.2	73	7.30	n.	se.
Zapotlan (Sem.)	5,078	25.14	82.8	59.0	69.1	75	9.22	n.	e.

[4] Clouds above fires have been recorded many times in the early annals of meteorology, e. g., in America by Mitchell and Espy; in Europe, by Kamtz.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, August, 1900.

The station is at 21° 18′ N., 157° 50′ W.

Hawaiian standard time is $10^{h}\ 30^{m}$ slow of Greenwich time. Honolulu local mean time is $10^{h}\ 31^{m}$ slow of Greenwich.

Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours is measured at 9 a. m. local or 7:31 p. m. (not 1 p. m.), Greenwich time, on the respective dates.

The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:29 a. m., Honolulu time.									Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.		
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	29.92	75	69	83	73	67.5	76	ne.	2-4	6	29.97	29.90	0.08
2	29.94	76	70	86	74	67.0	68	ne.	3	1-4	29.96	29.89	0.03
3	29.94	72	69.5	86	75	67.3	66	ne.	4	2	29.99	29.92	0.01
4	29.94	78	71	87	71	70.5	77	s.	2	4	29.97	29.92	0.01
5	29.92	78	71.5	86	77	68.3	68	ne.	3	2-9	29.98	29.92	0.01
6	29.90	76	71	87	76	67.7	65	ne.	3-1	5-8	29.97	29.89	0.00
7	29.89	79	71.5	87	75	69.5	68	ne.	3-1	6	29.96	29.87	0.01
8	29.94	79	71	86	77	68.0	63	ne.	5	5	29.98	29.91	0.01
9	29.96	76	71	84	78	67.5	67	ne.	4	9	30.01	29.93	0.07
10	29.97	76	70.5	85	74	69.5	76	ene.	3	8	30.03	29.97	0.13
11	29.96	75	70	85	74	68.3	69	ne.	4	2-1	30.01	29.93	0.24
12	29.99	77	69	82	72	67.7	71	ne.	3-5	6	30.03	29.95	0.09
13	30.00	77	69	83	75	66.3	66	ne.	5	4	30.04	29.97	0.02
14	29.98	76	69.5	84	76	66.0	66	ne.	5	5	30.03	29.97	0.29
15	29.97	76	69	84	72	66.5	67	ne.	3-4	5	30.03	29.96	0.02
16	29.91	70	68	84	75	65.7	64	nne.	3-4	3	29.98	29.90	0.00
17	29.92	72	68.5	86	69	67.5	72	nne.	2	1	29.95	29.88	0.00
18	29.89	78	74	87	72	70.0	73	nne.	0-3	3-10	29.96	29.87	0.01
19	29.90	79	72.5	84	77	73.5	79	se-s	0-1	10	29.95	29.87	0.06
20	29.97	77	71	87	76	69.0	68	ne.	3	8-4	30.00	29.91	0.01
21	30.00	77	68.5	84	77	67.7	67	ne.	5	3	30.05	29.97	0.04
22	29.92	76	68.5	83	77	64.0	62	ne.	4	4-9	30.02	29.94	0.10
23	29.89	74	68.5	83	75	66.0	67	ne.	4	5	29.94	29.85	0.30
24	29.89	76	69.5	83	70	66.3	69	ne.	3	6	29.93	29.89	0.08
25	29.94	75	71.5	84	75	66.7	67	ne.	2	10-6	29.97	29.89	0.00
26	29.96	79	72	87	74	71.5	77	ne.	0-3	10-7	30.00	29.90	0.02
27	29.96	78	72.5	85	78	70.3	71	ene-nne	1-4	5	29.99	29.92	0.00
28	29.97	77	69	85	77	69.3	69	ne.	4-5	6	30.02	29.95	0.00
29	29.99	76	69.5	85	76	66.3	65	ne.	1-5	5	30.02	29.95	0.15
30	29.95	76	69.5	84	73	67.5	70	ne.	2-4	6	30.00	29.94	0.16
31	29.94	75	69	85	73	67.3	66	ne.	3	3	29.97	29.90	0.04
Sums													2.00
Means	29.946	76.2	70.1	85.0	74.6	67.9	68.7		3.1	5.4	29.954	29.917	
Departure	—.023					+1.7	+0.1			+1.4			

Mean temperature for August, 1900 (6+2+9) ÷ 3=79.0°; normal is 77.6°. Mean pressure for August (9+3) ÷ 2 is 29.953; normal is 29.976.

* This pressure is as recorded at 1 p. m., Greenwich time. † These temperatures are observed at 6 a. m., local, or 4:31 p. m., Greenwich time. ‡ These values are the means of (6+9+2+9) ÷ 4. § Beaufort scale.

OBSERVATIONS FOR LOCAL THUNDERSTORMS AT SKYLAND, PAGE COUNTY, VA., AUGUST, 1900.

By Messrs. H. W. and H. S. Cragin.

August 1.—8 a. m., 66°; 2 p. m., 75°; 8 p. m., 65°. Fair, with falling temperature; fresh northwest winds. About 4 p. m. there were some showery formations but they did not amount to anything.

August 2.—8 a. m., 58°; 2 p. m., 67°; 8 p. m., 62°. Fair and cool; fresh northwest winds.

August 3.—8 a. m., 60°; 2 p. m., 71°; 8 p. m., 64°. Fair and cool; fresh north winds.

August 4.—8 a. m., 61°; 2 p. m., 73°; 8 p. m., 65°. Fair, with moderate temperature and light northeast winds.

August 5.—8 a. m., 63°; 2 p. m., 78°; 10 p. m., 64°. Fair, with slowly rising temperature; light east winds. It turned warmer during the night.

August 6.—8 a. m., 70°; 3 p. m., 85°; 10 p. m., 74°. Fair and warm; light north winds.

August 7.—8 a. m., 72°; 3 p. m., 86°; 12 p. m., 70°. Fair and very hot, with light northwest winds.

August 8.—8 a. m., 70°; 2 p. m., 85°; 11 p. m., 72°, Fair, continued warm, with brisk northwest winds.

August 9.—8 a. m., 72°; 3 p. m., 83°; 10 p. m., 72°. Partly cloudy and warm, with fresh northwest winds. It tried hard to rain, and even sprinkled a little about 3 p. m.

August 10.—8 a. m., 70°; 3 p. m., 85°; 11 p. m., 73°. Fair, continued warm, with light northwest winds.

August 11.—8 a. m., 73°; 3 p. m., 87°; 8 p. m., 67°; 10 p. m., 71°. Fair and very warm, with light southwest winds. Between 12 a. m. and 3 p. m. there were some showery formations but they amounted to nothing.

August 12.—8 a. m., 72°; 3 p. m., 85°; 10 p. m., 71°. Fair and hot in morning; partly cloudy in afternoon. About 7 p. m., after a long period of development, two showers appeared: one in the Shenandoah Vallay to the west of New Market Gap, the other in the Page Valley several miles to the northeast of the gap. Both moved northeast; the one in the Page Valley crossed the Blue Ridge a little to the north of here, while the one in the vicinity of the gap crossed the Page Valley and passed over camp. By 8 p. m. they had crossed the ridge and the thunder immediately ceased. These showers were full of electricity but contained very little rain. The lightning struck twice in the immediate neighborhood of camp. A strong west breeze sprung up during the night and modified the heat somewhat.

August 13.—8 a. m., 69°; 3 p. m., 80°; 11 p. m., 70°. Fair and not so warm; brisk west winds.

August 14.—8 a. m., 67°; 3 p. m., 83°; 12 p. m., 67°. Fair and slightly warmer; light west winds. At 3 p. m. a light shower, devoid of thunder, formed in the Shenandoah Valley to the west of the gap. It dissipated without moving, though its tendency was to move south. At 9 p. m. there was a little shower at camp. There was some thunder to the east of the ridge, but it soon ceased.

August 15.—8 a. m., 69°; 3 p. m., 82°; 9 p. m., 72°. Fair and warm; fresh southwest winds. Between 7 and 8 p. m. a shower, destitute of thunder, formed several miles to the south of the gap. It moved slowly northeast, crossed the Page Valley, passed over camp, and disappeared to the east of the ridge about 9 p. m. It was a light shower.

August 16.—8 a. m., 71°; 3 p. m., 82°; 11 p. m., 71°. Partly cloudy and warm, with fresh southwest shifting to east winds at night. Between 4 and 5 p. m. there was some thunder to the east of the ridge, to the southeast of here.

August 17.—8 a. m., 65.5°; 1 p. m., 79°; 10 p. m., 68°. Partly cloudy and not so warm—the hot wave was again broken somewhat during the preceding night—with fresh west winds. During the night a moderate thundershower passed over this part of the country, but it failed to lower the temperature.

August 18.—8 a. m., 66°; 2 p. m., 78°; 9 p. m., 69°. Partly cloudy, with fresh west winds. About 3 p. m. quite a hard shower, with but little thunder, formed in the Page Valley 7 or 8 miles to the northwest of here and moved southeast, passing over camp. Its course beyond here could not be traced.

August 19.—8 a. m., 66°; 3 p. m., 79°; 10 p. m., 68°. Partly cloudy, with fresh west winds.

August 20.—8 a. m., 68°; 3 p. m., 78°; 10 p. m., 70°. Partly cloudy, with brisk west winds. During the night there was

considerable rain, with quite a high wind. There was no thunder.

August 21.—8 a. m., 64°; 3 p. m., 70°; 8 p. m., 65°. Generally cloudy weather during the day was followed by a fog and misting rain at night. Fresh southwest winds shifted to east at night. The temperature again fell somewhat during the preceding night and broke the persistent hot wave. A little rain fell for about fifteen minutes during the afternoon of the 21st.

August 22.—8 a. m., 65°; 2 p. m., 72°; 8 p. m., 66°. Partly cloudy, with fresh southeast to east winds. Between 1 and 2 p. m. a moderate thundershower, which extended from the gap several miles to the northward, crossed the Page Valley, moving in an easterly direction, and passed over camp. During the evening the fog set in, accompanied by a misting rain.

August 23.—8 a. m., 66°; 3 p. m., 72°; 10 p. m., 66°. Foggy weather, with considerable rain in the morning, was followed by fair weather in the afternoon. East winds shifted to south during the day. It turned warmer during the night, but the warm weather during the next day was apparently caused by low pressure.

August 24.—8 a. m., 70°; 1 p. m., 79°; 8 p. m., 71°. Partly cloudy, and warm, fresh south winds. Between 1 and 2 p. m. a belt of inert showers, with some thunder, developed to the west of the Page Valley. With the exception of one shower, which reached the western part of the Page Valley, they all dissipated where they formed. At the same time there was some thunder to the east of the ridge.

August 25.—8 a. m., 70°; 3 p. m., 78°; 1 p. m., 71°. Fair and warm, fresh southwest winds. About 7 p. m. a light shower, devoid of thunder, occurred near the gap. During the day the weather assumed a hot-wave character.

August 26.—8 a. m., 72° 3 p. m., 84°; 10 p. m., 71°. Partly cloudy, and warm, fresh, southwest winds. During the afternoon some light showers occurred to the west of the Shenandoah Valley. They were too far away to be accurately observed. Between 4 and 5 p. m. there was some thunder to the east of the ridge. Between 6 and 7 p. m. a shower occurred in the Shenandoah Valley to the west of the gap. Between 7 and 10 p. m. incessant lightning was observed to the east of the ridge far to the north of here.

August 27.—8 a. m., 71°; 3 p. m., 83°; 10 p. m., 67°. Partly cloudy and warm, with showers in the afternoon. Fresh southwest winds. About 2 p. m. a shower occurred in the Shenandoah Valley to the northwest of the gap. It dissipated without moving. Between 6 and 7 p. m. a shower occurred in the Shenandoah Valley to the north of the gap. Between 7 and 8 p. m. a shower appeared in the Page Valley to the north of Luray, and moved eastward, recrossing the ridge to the north of here. About 8 p. m. a shower developed over camp and moved eastward across the ridge. At the same time a shower appeared in the Shenandoah Valley, but it was observed in darkness. Between 8 and 10 p. m. a good deal of rain fell in camp.

August 28.—8 a. m., 64°; 3 p. m., 74°; 8 p. m., 66°. Fair and not so warm, with fresh west winds. A temporary fall was caused by the rain of the preceding night.

August 29.—8 a. m., 68°; 3 p. m., 76°; 8 p. m., 69°. Fair and slightly warmer; fresh south winds.

August 30.—8 a. m., 68°; 3 p. m., 75°; 10 p. m., 66°. Partly cloudy, with fresh southeast winds.

August 31.—8 a. m., 69°; 2 p. m., 78°; 8 p. m., 70°. Fair, with moderate temperature; fresh east to southeast winds.

APPENDIX.

The gap referred to is the Newmarket Gap, 4 or 5 miles southwest of Luray, in the Massanutton Mountain. The month of August was remarkably dry. The springs are very low, and this region needs rain. The temperature for July and August has averaged higher than known for years, and the precipitation less. Cattle have to be fed, and the streams are so low on each side of the ridge that the mills can not be operated. The Page Valley, sometimes called the Luray Valley, is formed by the Blue Ridge and Massanutton Mountain. This valley begins a few miles above here, and extends, properly, to Riverton. Newmarket Gap runs through from this valley into the Shenandoah Valley proper about opposite this camp. An east current of air is drawn down the west side of the ridge about 5 p. m. on most warm days. It is frequent in June, and from August 15 to October, but liable to occur at any time. It is probably local, and caused by the gravitation of the cooler air of this region into the valley below. It is, however, affected by barometric conditions. An area of high pressure central to the north of the lower Lake region favors its occurrence. The fresh north winds prevailing during the day under such conditions become brisk northeast at night. A high area in the St. Lawrence region or on the New England coast also produces it, with stormy weather. Low pressure in the Lake region produces it, but generally without danger of a long storm. Low pressure in the south Atlantic or Southwest brings it about with stormy conditions. An area of high pressure in the south Atlantic is unfavorable to the easterly down draft, for it causes warm west to southwest winds day and night. High pressure anywhere to the west of here, except in the lower Lake region, which can be felt here, is also unfavorable. This east wind which prevails more or less every evening, unless unfavorable conditions prevent, dies away about 12 p. m.

There is no established record for this place, but I should say that this summer has been one of the dryest for years, and the mean temperature higher. Practically no rain fell until the 12th. From that date until the 20th a few light showers occurred in this region. From the 20th to 25th unsettled weather with light showers and fog. From latter date to end of the month (August) only slight precipitation. Although a good many showers appear in his report, little rain fell, as they were light or ill-defined.

Popular report makes the season the dryest within remembrance. Practically no rain fell from June 1 to 15, but from the 15th to 19th a northeast storm produced copious rain. From then to the last ten days of July there was very little precipitation. As a result the crops have been seriously injured. June was somewhat cooler than the average, but the heated term which began July 3 has been materially broken but once, from July 23 to August 5. From August 5 to 12 it was excessively hot. From August 12 to 21 temperature was somewhat lower. From August 21 to end of the month more or less changeable, but temperature considerably above the average.

In my last report I failed to record a thundershower which formed east of the ridge between 4 and 6 p. m., August 24. It was observed by others to extend as far as Culpeper, at least, which is 25 miles from here. I spoke of the unusual electric energy of the shower of the 12th.

Referring to the expression "North Mountains," misprinted "North Mountain," in Mr. H. S. Cragin's record for July, he writes to the Editor as follows:

> The people of this region bound the Shenandoah Valley on the west by the North Mountains, and it is these that were referred to in the above paragraph, and not "the North Mountain," which is quite a long distance to the north or northwest of Skyland.

According to the Luray sheet published by the United States Geological Survey, the Blue Ridge on the east and the range, called the North Mountains, on the west include the whole of the lower part of the Shenandoah Valley; but between

these are smaller ranges, viz: the Massanutton Mountain, Powell's Mountain, Three-Top Mountain, and others. Skyland is so located on the west slope of the Blue Ridge, near Stony Man Mountain, that it has immediately on its west the gap called Newmarket Gap, near the southern end of Massanutton Mountain. To the west of this the line of sight passes over the hills of the southern end of the ridge of North Mountains and strikes the Shenandoah range of mountains. The upper part of the valley of the Shenandoah River lies between the Blue Ridge on the east and the Shenandoah Mountains on the west.

Mr. Cragin adds:

Many of the thunderstorms in the Shenandoah Valley seem to be what are called "valley" storms in Professor Davis's Meteorology, caused by ascending hot air in the way he speaks of, and not of much strength.

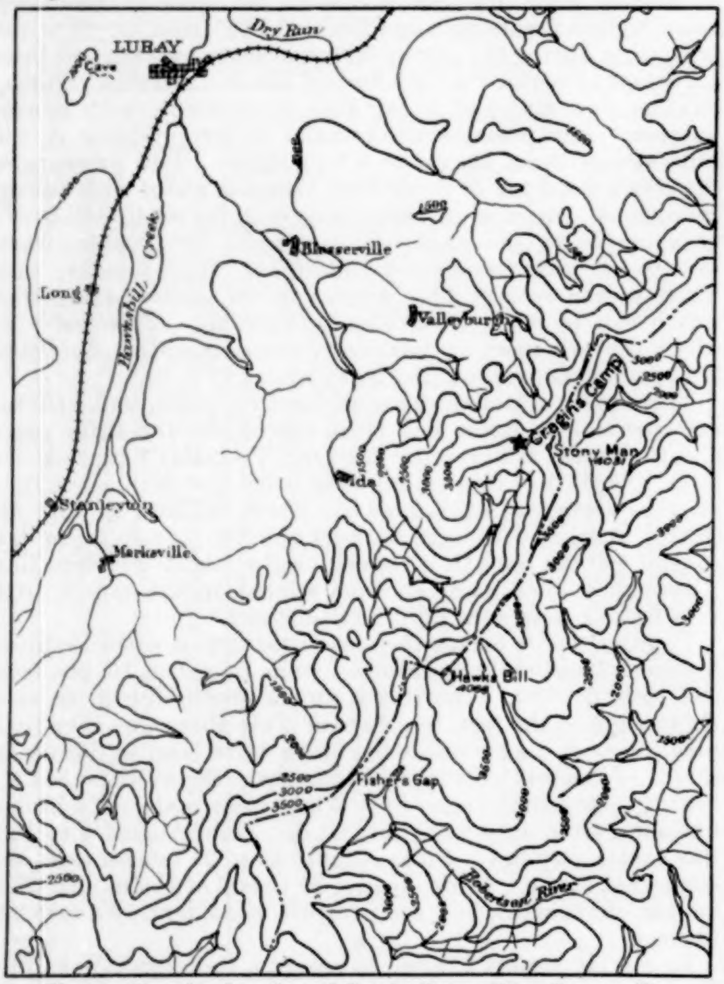

Fig. 1.—Showing location of Cragin Camp, Page County, Va.

CLIMATOLOGY OF ST. KITTS, W. I.

By W. S. Alexander, Observer, Weather Bureau, dated August 27, 1900.

A paper containing certain descriptive and tabulated data relative to this subject was published in the Monthly Weather Reriew, Annual Summary, 1899, and some additional details in the February, 1900, Review. The fact that these meteorological data cover a period of forty-four years seems to justify, if, indeed, it does not demand, a more extended discussion. It appears to be important, in order to arrive at the true and full value of these old records as well as of the service performed by the compilers of the same, that a statement in detail be made of the conditions and agencies involved in the original records, so far as can now be done. The present discussion is, therefore, devoted to this end.

Following a suggestion from the editor of the Review, the work of each observer concerned has been reduced independently and the results given in Table 1. The fact that the original records were prepared by different observers, at different times, with different instruments differently exposed, renders this procedure necessary in order to avoid fallacious results. Perhaps the materials supplied from these various sources can be reduced to a homogeneous system of normal values.

Referring to Table 1, it will be observed that there are four divisions, each presenting the means by hours as obtained from the compilations of the observer indicated at the head of the division. At the head of the first division is the name of George James Evelyn, to whom much praise is due for his long and patient labors, extending over a period of twenty-seven years (from 1856 to 1882, inclusive), and for his kindness in permitting the exclusive use of the same for publication in the Monthly Weather Review. Mr. Evelyn came to St. Kitts sixty-nine years ago and, although now a nonagenarian, is still in the enjoyment of excellent health and a youthful spirit, his greatest impediment being, apparently, defective eyesight. The writer has more than once listened with pleasure to his reminiscences of the distant past. He was receiver-general or subtreasurer for the colony during the time he made his meteorological observations and did this work of his own accord in addition to his official duties.

The barometer used by Mr. Evelyn belonged to the government and was presumed to be a good one; it was one of the fixed cistern manufactured by J. Nixon, London. The tube of this barometer is smaller than the tubes of the barometers used by the Weather Bureau and is encased in a wooden frame, to which is attached a metal scale and vernier. It was exposed in an east room, on the ground floor of the treasury building, being attached to the partition wall on the west side of the room, and was not, perhaps, more than 12 feet above sea level. It was not moved during the whole series. The readings were made by simply adjusting the vernier and observing the figures then indicated. Mr. Evelyn is positive that no corrections were applied to the readings, hence it would appear that unless the manfacturer, by some method of calibration, made compensation for instrumental errors, and it seems he did, these readings may be considerably out. Inasmuch, however, as this error, whatever it may be, is constant, or nearly so throughout, there is a comparative value in the results which ought not to be overlooked.

Attention is invited to the explanatory note under Table 1. This table upon a cursory or superficial inspection may appear to be erroneous in view of the well-known diurnal barometric changes. Under normal conditions in all tropical regions the barometer rises from 4 a. m. to 10 a. m., and falls from 10 a. m. to 4 p. m., and so on. Mr. Evelyn's observations apparently run contrary to this recognized principle, as is seen by comparing the 8 a. m. mean, for instance, with the 9 a. m. or 10 a. m. mean. But this is evidently fallacious for reasons which will appear from a study of the note just referred to. If now we compare the 8 a. m. mean with the 12 noon and 4 p. m. means, as is manifestly proper, we find that they are in accord with this principle. For instance, the January mean for 8 a. m. is 30.015; for 12 noon, 30.025; and for 4 p. m., 30.017. The February mean for 8 a. m. is 30.019; for 12 noon, 30.033; and the 4 p. m., 30.026, and so on, just as the principle would lead us to expect. So, also, the 9 a. m. means may be compared with the 2 p. m. means and the same relation is observed. The same is true of the 10 a. m. and 2 p. m. means, with possibly one exception, namely, the means for February. Here we find the 10 a. m. mean less than the 2 p. m., whereas we should expect the reverse. The first

TABLE 1.—*Means of observations at Basseterre, St. Kitts, W. I.*

Months.	Mr. George James Evelyn.												Mr. E. A. Hancock.						Mr. C. O. Plageman.				U. S. Weather Bureau.					
	8 a.m.		9 a.m.		10 a.m.		12 noon.		2 p.m.		4 p.m.		9 a.m.		10 a.m.		3 p.m.		9 a.m.		3 p.m.		8 a.m. (8:49 a. m. local).		8 p.m. (8:49 p. m. local).		12 noon (12:49 p.m. local).	
	Baro. (10)	Ther. (10)	Baro. (14)	Ther. (14)	Baro. (3)	Ther. (1)	Baro. (10)	Ther. (11)	Baro. (15)	Ther. (15)	Baro. (10)	Ther. (11)	Baro. (3)	Ther. (3)	Baro. (3)	Ther. (3)	Baro. (6)	Ther. (6)	Baro. (1)	Ther. (1)	Baro. (1)	Ther. (1)	Baro. (1)	Ther. (1)	Baro. (1)	Ther. (1)	Baro. (1)	Ther. (1)
January	30.015	76.9	29.979	79.1	30.013	79.4	30.025	81.3	29.980	81.6	30.017	80.4	29.983	78.4	30.006	79.7	29.962	81.5	30.016	80.5	29.991	82.4	30.018	77.9	29.994	76.2	30.025	79.6
February	30.019	76.3	29.984	79.1	29.983	79.3	30.033	81.2	29.985	81.7	30.026	80.4	30.009	78.9	30.037	79.3	29.987	81.2	29.988	78.5	29.976	80.3	30.070	77.1	30.044	75.5	30.081	80.0
March	29.994	77.7	29.972	79.0	29.990	79.1	30.008	81.3	29.975	82.1	29.993	80.6	29.997	79.8	30.034	80.2	29.970	81.8	29.957	78.6	29.933	80.5	30.058	76.1	30.030	74.2	30.037	79.1
April	29.988	78.3	29.964	81.0	30.000	80.6	29.998	82.4	29.970	83.2	29.987	81.7	29.991	82.2	30.026	80.8	29.965	83.0	30.018	81.4	30.000	84.3	30.021	78.7	30.003	76.3	30.006	80.7
May	29.977	81.0	29.953	82.4	29.983	81.4	29.985	83.8	29.953	84.6	29.978	83.1	29.971	82.8	29.992	83.9	29.953	83.7	29.983	82.7	29.971	85.4	30.038	80.7	30.017	78.3	30.018	83.2
June	30.014	81.5	29.989	83.9	30.013	84.0	30.020	84.5	29.993	85.9	30.014	83.6	30.008	83.3	30.043	85.1	30.007	84.9	30.016	84.0	30.008	86.1	30.030	81.6	30.023	78.9	30.016	84.2
July	30.017	82.0	29.988	84.2	29.990	83.8	30.024	85.4	29.987	86.3	30.019	84.3	30.010	83.2	30.039	86.4	30.002	85.9	30.001	83.7	29.989	84.9	30.000	81.4	29.997	79.7	29.991	84.1
August	29.984	82.7	29.946	84.9	29.997	84.5	29.990	85.9	29.951	87.0	29.979	85.2	29.979	84.2	29.986	86.7	29.953	86.4	29.987	83.7	29.978	85.1	29.964	81.9	29.954	80.2	29.932	84.6
September	29.960	83.2	29.924	85.0	29.963	83.9	29.962	85.8	29.926	86.7	29.965	85.1	29.956	83.2	29.988	86.0	29.927	86.1	29.939	84.2	29.925	84.4	29.973	82.2	29.959	80.1	29.946	84.7
October	29.923	82.3	29.904	84.3	29.930	84.3	29.926	85.2	29.902	86.4	29.916	84.4	29.957	85.5	29.953	85.5	29.882	86.2	29.954	83.5	29.940	85.6	29.918	82.1	29.909	79.1	29.881	84.8
November	29.929	80.7	29.904	83.0	29.930	83.1	29.939	84.0	29.905	84.9	29.930	83.0	29.927	81.2	29.916	83.3	29.895	83.4	29.929	80.9	29.918	81.4	29.937	82.1	29.923	79.1	29.893	83.5
December	29.968	78.4	29.948	80.9	30.003	81.9	29.975	82.2	29.955	83.3	29.969	81.4	29.944	80.5	29.966	80.8	29.928	81.6	.....	.....	.....	.....	29.963	79.0	29.941	74.9	29.915	82.0
Yearly means.	29.982	80.1	29.954	82.2	29.983	82.1	29.990	83.3	29.957	84.5	29.983	82.8	29.985	82.0	29.998	83.1	29.953	83.8	29.981	82.0	29.966	83.7	29.999	80.1	29.983	77.7	29.980	82.5

EXPLANATORY.

Local time, which is forty-nine minutes faster than seventy-fifth meridian, is used throughout, except by the United States Weather Bureau. The figures, in thesis, just below the headings "Baro." and "Ther." indicate the number of years upon which the mean is based.

A. *Evelyn's record.*—1. The 8 a. m., the 12 noon, and the 4 p. m. readings were made from 1858 to 1867, inclusive—ten years. 2. The 9 a. m. readings were made from 1869 to 1882, inclusive—fourteen years. 3. The 10 a. m. readings were made in 1856, 1857, and 1868—three years. 4. The 2 p. m. readings were made from 1868 to 1882, inclusive—eleven years.

B. *Hancock's record.*—1. The 9 a. m. readings were made from 1892 to 1894, inclusive—three years. 2. The 10 a. m. readings were made from 1895 to 1897, inclusive—three years. 3. The 3 p. m. readings were made from 1892 to 1897, inclusive—six years.

C. *Plageman's record.*—The readings were made at 9 a. m. and 3 p. m. from January to November, inclusive, 1898.

D. *The United States Weather Bureau record.*—1. The 8 a. m. and 8 p. m. readings (seventy-fifth meridian time) were made from March, 1899, to February, 1900—one year. The readings for January and February, 1900, were used instead of those for 1899, because the observations were made at 6 a. m. and 6 p. m. during those months in 1899. 2. The 12 noon means are taken from the Richard barograph for 1899.

It will be observed that these hourly means are based upon the means of consecutive years with one exception, the 10 a. m. mean. The thermometric means are for very nearly the same years as the barometric. In general, the barometric means are believed to hold good for sea level.

TABLE 2.—*Showing monthly means for certain hours and years, together with other data.*

Date.	Air pressure (in inches).		Temperature (Fahrenheit).												Dew-point.		Relative humidity.		Wind.			
			Dry.		Wet.		Max.	Min.	Mean.	Highest.	Date.	Lowest.	Date.						Prevailing direction.		Average No. miles.	
	10 a.m.	3 p.m.	10 a.m.	3 p.m.	10 a.m.	3 p.m.			*						10 a.m.	3 p.m.	10 a.m.	3 p.m.	10 a.m.	3 p.m.	Per day.	Per hour.
1892.																						
January	30.038[b]	29.984[b]	78.9	79.4	74.7	74.6	83.9	72.8	78.4	87	20	70	5†		71	71	80	78[a]	......	......	......	......
February	30.634	29.990[d]	78.3	78.6[d]	71.4	71.0[d]	83.8	70.4	77.1	89	26†	68	20†		62	66	69	68[d]	......	......	......	......
March	30.051	30.005[d]	80.7	79.3[e]	76.8	75.7[d]	85.3	72.0	78.6	90	4†	68	4		74[d]	73	87	83[d]	......	......	......	......
April	30.072	30.020[e]	80.6	79.3[e]	75.8	75.0[e]	83.6	72.4	78.0	86	10†	70	1†		73	72[e]	78	79[e]	......	......	......	......
May	30.040	30.017[e]	82.0	80.5[e]	78.9	77.8[e]	84.3	74.4	79.4	89	29	71	9†		77	76[e]	85	87[e]	......	......	......	......
June	30.081	30.060[e]	84.6	84.0[d]	81.2	80.7[e]	87.0	75.6	81.3	89	30	71	20		79	78[e]	84	85[e]	......	......	......	......
July	30.086	30.049[e]	85.6	86.4[e]	82.7	83.4[e]	89.1	75.5	82.3	91	31	72	22		81	81[e]	86	85[e]	......	......	......	......
August	30.008	29.968[f]	86.4	87.3[f]	84.2	85.1[f]	89.9	74.6	82.2	94	19	71	23		83	83[k]	88[b]	89[k]	......	......	......	......
September	30.009	29.964[e]	85.1	86.7[e]	82.8[e]	84.1	89.8	74.2	82.0	94	11†	72	3†		81	82[e]	......	......	......	......	......	......
October	29.955	29.915[e]	85.6	85.9[e]	78.6	79.0[e]	89.0	74.7	81.8	91	4	71	3		77	74[e]	......	......	......	......	......	......
November	29.917[a]	29.885[e]	82.8[a]	81.6[e]	77.2[a]	76.6[e]	86.2	72.4	79.3	89	1†	70	5†		74[a]	73[e]	......	......	......	......	......	......
December	29.983	29.950[e]	81.0	80.8[e]	74.6	74.1[e]	84.3	71.6	78.0	86	5†	69	21†		70	69[e]	......	......	......	......	......	......
1893.																						
January	29.991	29.968[f]	81.4	82.9[f]	74.1	74.8[f]	85.2	70.8	78.0	87	27	67	10		69	69[f]	......	......	......	......	......	......
February	30.027	29.993[i]	80.9	82.2[d]	73.5	74.2[d]	84.3	70.2	77.2	87	3	66	9		68	69[d]	......	......	......	......	......	......
March	30.013	29.989[e]	79.8	82.3[e]	69.9	71.8[e]	85.2	69.2	77.2	87	6†	66	11†		66	65[e]	......	......	......	......	......	......
April	30.002[a]	29.970[e]	80.3[a]	83.0[e]	74.4[a]	74.6[e]	85.5	71.1	78.3	88	1†	66	12		68[a]	69[e]	......	......	......	......	......	......
May	29.981[a]	29.962[d]	84.3	84.2[d]	77.1[a]	76.9[d]	86.6	73.2	79.9	89	10	70	14		72[a]	72[d]	......	......	......	......	......	......
June	30.004	39.992[f]	85.2	85.3[f]	78.0	78.0[f]	87.7	74.6	81.1	90	8†	70	9		73	73[f]	......	......	......	......	......	......
July	29.975	29.957[f]	88.4	86.0[f]	79.5	79.6[f]	88.5	74.7	81.6	94	30	70	5		73	75[f]	......	......	......	......	......	......
August	29.946	29.932[e]	86.9	86.2[e]	80.2	79.2[e]	90.5	75.6	83.0	94	31	72	16†		76	75[e]	......	......	......	......	......	......
September	...	...	...	...	...	...	...	...	...	...	...	...	...		...	...	......	......	......	......	......	......
October	29.945[h]	29.919[i]	85.4[h]	83.7[i]	79.1[h]	78.0[i]	88.0[j]	73.9[j]	81.0	92[h]	15	70[h]	30		79[h]	76[i]	......	......	......	......	224	9.3
November	29.865	29.823[g]	84.6	83.0[g]	77.3	76.2[g]	88.1	72.4	80.2	92	9	68	30		75	74[g]	......	......	......	......	240	10.2
December	29.965	29.916[e]	80.1	80.1[e]	74.0	74.0[e]	83.9	71.4	77.6	92	8	68	21		72	72[e]	......	......	......	......	378	15.5
1894.																						
January	29.988	29.964[g]	78.8	79.6[g]	72.6	72.8[g]	83.0	69.8	76.4	85	29†	65	22		68	68[g]	......	......	......	......	337[e]	14.0
February	30.049[a]	30.010[h]	78.7[h]	80.4[h]	71.9[h]	72.2[h]	83.6	69.6	76.6	86[h]	17	66[h]	10		67	67[h]	......	......	......	......	361	15.0
March	30.037	29.985[f]	80.1	81.1[f]	72.3	72.8[f]	84.4	68.2[a]	76.3	87	10†	62	7†		67	63[f]	......	......	......	......	305	12.7
April	30.003	29.949[e]	81.4	82.0[e]	74.8	74.9[e]	85.8	70.5	78.2	90	15	66	15		70	71[e]	......	......	......	......	254	10.6
May	29.954	29.922[f]	85.4	84.8[f]	78.1	77.8[f]	88.9	73.4	81.2	92	28	71	1†		73	73[f]	......	......	......	......	186	7.7
June	30.043	30.008[d]	85.6	85.3[d]	78.1	78.6[d]	88.6	74.9	81.8	92	16	72	3		73	74[d]	......	......	......	......	281	11.7
July	30.055	30.016[e]	85.3	86.2[e]	78.0	78.1[e]	89.0	75.0	82.0	92	25	72	4		73	73[e]	......	......	......	......	347	14.5
August	30.005	29.961[e]	86.2	87.0[e]	78.6	78.7[e]	89.9	75.6	82.8	92	10	72	22†		74	73[e]	......	......	......	......	287	12.0
September	29.966	29.908[f]	86.9	86.7[e]	79.4	79.1[e]	90.8	74.0	82.4	94	17	72	3†		75	74[e]	......	......	......	......	208[e]	8.5
October	29.958	29.894[e]	85.6	85.2[e]	78.6	78.1[e]	86.4	73.1	79.8	90	12	69	21		74	74[e]	......	......	......	......	......	......
November	29.967	29.917[e]	82.5	87.3[e]	77.4	77.4[e]	86.7	73.3	80.0	90	3	69	6		74	73[e]	......	......	......	......	......	......
December	29.949	29.904[b]	81.1	81.8[b]	75.6	75.8[b]	84.6	70.8	77.7	88	21	64	28		72	72[b]	......	......	......	......	......	......
	9 a.m.		9 a.m.		9 a.m.										9 a.m.		9 a.m.		9 a.m.		9 a.m. to 9 a.m.	
1895.																						
January	29.991	29.957[e]	78.3	81.3[e]	72.7	74.5[e]	83.6	69.9	76.8	86	21	64	12		69	70[e]	74	70[e]	ene.	ene.	292	12.2
February	30.009	29.965[e]	79.9	80.7[e]	72.6	73.4[e]	84.4	70.3	77.4	87	18	66	10†		68	68[e]	71	68[e]	e. by n.	e.[e]	274	11.4
March	30.030	29.972[e]	80.4	82.6[e]	73.3	74.2[e]	85.6	71.9	78.8	88	22†	68	1		68	69[e]	69	65[e]	ene.	e. by n.[e]	327	13.6
April	30.022	20.967[f]	81.5	84.4[f]	75.3	76.0[f]	87.9	76.2	82.0	92	22	72	2†		70	71[f]	66	65[f]	e. by s.	e. by s.[f]	253	10.5
May	30.012	29.972[e]	82.2	80.6[e]	76.4	76.8[e]	87.2	71.6	79.4	94	15	70	24		72	72[e]	74	77[e]	e. by s.	e.[e]	309	12.9
June	30.043	30.028[f]	83.6	85.2[f]	78.0	78.9[f]	88.3	76.2	82.2	90	5†	72	27		74	75[f]	72	73[f]	e.	e.[f]	297	14.0
July	30.027	30.001[d]	82.8	84.8[d]	78.1	79.2[d]	88.4	76.5	82.4	92	9	73	10†		75	76[d]	78	76[d]	e.	e.[d]	371	15.5
August	29.948	29.922[f]	83.4	84.9[f]	79.3	79.9[f]	88.9	76.5	82.7	91	29	73	3†		77	77[f]	81	78[f]	e.	e.[f]	296[a]	12.3
September	29.931	29.901[e]	82.9	85.4[e]	79.2	80.0[e]	88.3	75.7	82.0	91	13	70	30		77	76[e]	79	77[e]	e. by s.	e.[e]	259	10.8
October	29.939	29.865[d]	83.7	85.0[d]	79.4	78.2[d]	88.2	74.9	81.6	90	10	71	25		77	76[d]	81	81[d]	e. by s.	e.[d]	217	9.0
November	29.933	29.888[e]	81.3	83.6[e]	76.9	78.0[e]	86.7	74.2	80.4	90	2	68	3		74	75[e]	80	79[e]	e. by s.	e.[e]	280	11.7
December	29.908	29.868[g]	79.7	81.9[g]	76.0	76.3[g]	85.4	71.2	78.3	89	14	64	19		73	73[g]	82	77[g]	e. by s.	e. by s.[g]	208	8.7

TABLE 2.—*Showing means for certain hours and years, together with other data*—Continued.

Date.	Air pressure (in inches).		Temperature (Fahrenheit).											Dew-point.		Relative humidity.		Wind.			
			Dry.		Wet.		Max.	Min.	Mean.	Highest.	Date.	Lowest.	Date.					Prevailing direction.		Average No. miles.	
	10 a.m.	3 p.m.	10 a.m.	3 p.m.	10 a.m.	3 p.m.			*					10 a.m.	3 p.m.	10 a.m.	3 p.m.	10 a.m.	3 p.m.	Per day.	Per hour.
1896.																					
January	29.975	29.947[e]	77.7	81.5[e]	73.5	75.3[e]	84.6	70.6	77.6	87	28	65	29	71	72[e]	80	72[e]	ene.	e. by n.[e]	269	11.2
February	29.989	29.981[d]	78.8	81.7[d]	73.3	74.8[d]	84.2	70.9	77.6	87	7	67	1	70	71[d]	71	66[d]	e.	e.[d]	303	12.6
March	29.980	29.945[e]	79.0	82.8[e]	73.4	74.9[e]	85.6	70.2	77.9	88	7	63	5	70	70[e]	74	62[e]	e. by n.	ene.[e]	299	12.4
April	29.967	29.981[g]	80.6	84.1[g]	74.7	76.0[g]	86.7	72.4	79.6	89	25	70	20	70	71[g]	74	66[g]	e.	e. by n.[g]	336	14.1
May	29.953	29.928[g]	82.9	85.8[g]	77.7	79.1[g]	88.1	74.6	81.4	92	31	71	24	74	75[g]	77	72[g]	e.	e.[g]	279	11.6
June	30.004	29.977[e]	83.3	84.4[e]	78.8	79.3[e]	88.8	75.7	82.2	91	2†	72	17	76	76[e]	80	78[e]	e. by n.	e. by n.[e]	326	13.6
July	30.015	29.996[d]	83.5	85.5[d]	79.6	80.5[d]	88.6	76.0	82.3	90	22†	72	1†	77	78[d]	88	78[d]	e.	e.[d]	309	12.9
August	29.975	29.946[f]	85.0	86.9[f]	80.3	80.1[f]	90.5	76.4	83.4	93	29	72	7	77	78[f]	88	76[f]	e.	e.[f]	273	11.4
September	29.931	29.885[d]	86.5	88.5[d]	80.8	81.8[d]	91.4	75.4	83.4	95	10	72	12†	77	78[d]	77	72[d]	e.	e.[d]	217	9.0
October	29.932[h]	29.876[j]	86.0[h]	88.3[j]	80.6[h]	81.2[j]	91.1[h]	74.0[h]	82.6	94[h]	11	71[h]	31	77	77[j]	77[h]	71[j]	e. by s.[h]	ene.[j]	144	6.0
November	29.921	29.859[e]	80.2	82.6[e]	75.6	76.7[e]	85.7	73.1	79.4	90	5	69	3†	72	73[e]	79	74[e]	e. by n.	e. by n.[e]	339	14.1
December	29.977	29.925[g]	80.1	83.4[g]	76.0	77.7[g]	85.6	73.2	79.4	88	12	70	31	73	74[g]	81	74[g]	e.	e.[g]	203	8.5
1897.																					
January	29.983	29.952[f]	79.3	83.3[f]	74.3	76.4[f]	85.6	70.6	78.1	88	31	64	4	71	72[f]	78	70[f]	e.	ene.[f]	237	9.9
February	30.029	29.990[d]	78.9	83.7[d]	73.1	78.4[d]	86.5	71.0	78.8	88	2†	66	9	69	70[d]	69	66[d]	e.	e.[d]	282	8.5
March	29.980	29.942[f]	80.1	84.1[f]	74.1	75.4[f]	86.6	71.3	79.0	88	4†	65	11†	70	70[f]	68	67[f]	e.	e.[f]	289	12.0
April	29.985	29.916[g]	82.6	85.2[g]	76.9	77.9[g]	89.0	73.7	81.4	90	11	69	5	73	74[g]	71	70[g]	e.	e.[g]	180	7.4
May	29.947	29.917[g]	83.4	84.3[g]	78.0	78.5[g]	83.4	76.2	79.8	92	13	71	18	77	75[g]	76	75[g]	e.	e.[g]	225	9.4
June	29.979	29.971[g]	82.8	85.1[g]	77.7	79.9[g]	88.9	75.6	82.2	95	18	72	6†	75	74[g]	78	76[g]	e.	e.[g]	276	11.5
July	29.989	29.975[d]	84.3	87.0[d]	80.6	81.5[d]	89.9	73.5	81.7	91	17†	74	27	78	79[d]	78	79[i]	e.	ene.[d]	247	10.3
August	30.014	29.994[f]	84.3[c]	86.4[i]	82.1[c]	83.3[i]	89.8	77.4	83.6	93	31	72	28	80[c]	81[i]	80[j]	80[p]	e.	e.[f]	258	10.8
September	30.007	29.989[i]	80.2	81.6[d]	80.1	81.5[d]	92.1	76.0	84.1	94	13	72	29	76	77[d]	75	73[i]	ese.	e.[c]	166	6.9
October	29.999	29.924[e]	86.8	88.9[c]	79.7	80.8[e]	89.6	75.7	82.6	94	15†	74	3	75	76[c]	73	66[c]	e.	e.[c]	158	6.6
November	....	....	82.2[e]	....	75.6[e]	....	87.3[e]	75.2[e]	81.2	89[c]	17†	72[c]	25	....	....	....	....	e.[c]	....	....	....
December	....	....	81.8[a]	....	74.4[a]	....	85.9[a]	74.7[a]	80.3	88[a]	2	71[a]	8†	....	....	....	....	ene.[a]	....	247[b]	10.3
1898.																					
January	30.016	29.991	80.5	82.4	72.5	73.4	84.7	72.3	77.5	82	4†	70	10†	66[a]	67	68[h]	63[a]	ene.	ne.	266	10.7
February	29.988	29.976	78.5	80.3	70.5	70.7	86.1	73.1	79.6	89	12	70	13	65[f]	64	63[i]	61[g]	e.	ene.	275	10.1
March	29.957	29.933	78.6	80.5	70.3	70.0	85.6	69.2	77.4	90	13	65	28	66[c]	63[c]	66[g]	....	e.	e.	284	10.4
April	30.018	30.000	87.4	84.3	72.7	72.3	87.9	71.0	79.4	92	29	69	1	67	64	64[c]	....	e.	e.	261	10.9
May	29.983	29.971	84.7	85.4	73.2	73.4	86.7	73.7	80.2	94	17	71	26	71	69	67	59	e.	e.	203[b]	8.5
June	30.016[a]	30.008[a]	84.0	86.1[a]	76.1[a]	76.6[a]	90.4[a]	75.0[a]	82.7	94[a]	9	71[a]	2†	71[a]	70[a]	67[a]	62[a]	e.	e.	270[b]	11.1
July	30.001	29.989	84.7	84.9	76.8	77.3	89.0	74.2	81.6	93	1†	69	7	72	72	72	68	e.	e.	276	11.5
August	29.987	29.978	83.7	85.1	77.2	78.0	88.6	74.8	81.7	92	5†	70	19	73	73	72	70	e.	e.	243[i]	10.2
September	29.949	29.925	84.2	84.4	78.2	78.3	88.2	74.0	81.1	92	27	69	21†	74	74	73	73	e.	ene.	230	9.6
October	29.934	29.940	83.5	85.6	76.6	78.6	88.5	73.2	80.8	92	11†	66	6	72	74	70	70	e.	e.	170	10.3
November	29.929	29.918	80.9	81.4	75.1	75.7	84.1	71.4	77.8	87	1†	69	12	71	72	75	74	e.	ene.	224	9.3
December	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1899.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.								8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.		
January	30.028	30.019	74.5	75.9	69.3	69.8	80.3	71.3	75.8	82	2	68	14	67	67	78	74	e.	e.	261	10.9
February	30.093	30.082	76.0	75.0	68.8	68.0	80.2	71.2	75.7	82	14	66	16	66	64	72	69	ne.	e.	270	11.2
March	30.058	30.030	76.1	74.2	67.8	66.4	80.0	71.1	75.6	82	20	65	9	64	62	65	68	n.[e]	ne.	238	9.9
April	30.021	30.008	78.7	76.3	70.8	69.9	81.7	73.6	77.6	83	4	70	24	67	67	68	73	e.	e.	232	9.7
May	30.038	30.017	80.7	78.3	73.5	72.8	84.5	75.4	80.0	86	27	71	15	70	70	71	77	e.	e.	228	9.5
June	30.030	30.025	81.6	78.9	72.2	74.0	85.2	74.2	79.7	87	12	71	6	72	72	73	80	e.	e.	240	10.0
July	30.000	29.997	81.4	79.7	75.2	74.7	85.6	75.5	80.6	87	29	70	27	73	73	76	79	e.	e.	277	11.5
August	29.964	29.954	81.9	80.2	75.8	75.4	85.7	77.1	81.4	88	6	70	7	74	74	76	80	e.	e.	288	12.0
September	29.973	29.959	82.2	80.1	76.2	76.1	85.9	76.5	81.2	88	7	70	28	74	74	76	83	e.	e.	254	10.6
October	29.918	29.909	82.1	79.1	75.6	74.7	86.0	74.9	80.4	88	24	70	9	73	73	74	82	e.	ne.	171	7.1
November	29.937	29.928	82.1	79.1	75.6	74.6	85.2	74.3	79.8	89	17	70	19	73	73	74	81	e.	e.	196	8.2
December	29.963	29.941	79.0	74.9	70.3	69.2	82.7	70.8	76.8	85	1	64	21	66	66	65	76	ne.	ne.	199	8.3

The data for the years 1892 to 1897, inclusive, were compiled from records kept by Mr. Hancock; that for the year 1898 from records by Mr. Plageman; and that for 1899 from the United States Weather Bureau records. The small letters to the right and a little above certain means indicate the number of observations missing from the column of which they are the means. For instance, [a] shows one observation missing, [b] two, and so on.

$* \frac{\text{Max.} + \text{Min.}}{2}$

† Indicates that the maximum or minimum temperature occurred on other dates also.

portion of Mr. Evelyn's record, say the first ten years, seems to be more reliable than the subsequent portion, owing, perhaps, to deterioration of the instrument or to a lack of interest or care in the observer, or both. As a possible aid in arriving at the real value of these old readings, the writer is making and preparing for publication a series of comparative readings between the barometer used by Mr. Evelyn and the station barometer in this office.

Mr. Evelyn's temperature readings are the readings of the thermometer attached to the barometer, a fact unknown at the time the first paper was prepared. Although the instrument was exposed in an east room, well arranged for the free passage of the air, the reading can not be accepted as representing the true diurnal or annual ranges of atmospheric temperature, although the annual average must be correct.

The next series of observations was made by Mr. E. A. Hancock, at that time government analyst for the island, and covers the period from 1882 to 1897, inclusive. Mr. Francis Watts, government analyst for the Leeward Islands, has kindly supplied many of the details with reference to the work of Mr. Hancock as the latter was working more or less under the direction of Mr. Watts.

Mr. Hancock was equipped with a very complete set of meteorological instruments, including a mercurial barometer, a barograph, an anemometer, and a full set of thermometers, dry, wet, maximum, and minimum. The exposure of these instruments was decidedly better and the results, therefore, of more value than the preceding series. The barometer was made by J. Hughes, London, and was placed in a room on the ground floor of Mr. Hancock's residence, about 70 feet above sea level. It appears to be an excellent instrument, of the fixed cistern type, the tube is somewhat larger than the tubes of the Weather Bureau barometers, and is inclosed in a wooden case, to which is attached an ivory scale and vernier. On the instrument the following directions for instrumental error and reducing to sea level are engraved, viz: 29.00 inches, —0.05; 29.50 inches, —0.04; 30.00 inches, —0.02; for every 100 feet of elevation, add 0.1 inch. As Mr. Hancock's place was 70 feet above sea level it is presumed that he added 0.07 inch after deducting the corrections above indicated. The thermometers were exposed in a Stevenson's screen, placed in the open about four feet above a grass-covered lawn. The maximum thermometer was made by Negretti & Zambra, the minimum by Dring & Fage, and the dry and wet by Townson & Mercer, all of London. The wet thermometer was provided with water cup and wick. The anemometer was very similar to that used by the United States Weather Bureau, and was exposed on the roof of Mr. Hancock's house, about 35 feet above the ground. The name of the maker of the instrument does not appear, but the dimensions are: diameter of cups, 3

inches; length of arm from center of axis to center of cup, 7 inches.

When Mr. Hancock gave up observing at the end of 1897, Mr. C. O. Plageman removed these instruments to his residence, which is about 200 feet above the sea, and exposed them very much in the same way as did Mr. Hancock, the greatest difference being in the anemometer, which he placed upon a platform 25 feet above the ground, especially erected for it. Being now 200 feet above sea, 0.2 inch was added to the barometer readings to reduce them to sea level.

The details of the results of Mr. Hancock's and Mr. Plageman's meteorological labors are given in Table 2, which it is advisable to study in connection with Table 1, as the basis for the latter. In obtaining the dew-point and the relative humidity, Molesworth's Psychrometric Tables were used. A day's wind record began with the morning observation, that is if the observation was taken at 9 a. m. the miles of wind were counted from 9 a. m. to 9 a. m., and if the observation was taken at 10 a. m. the wind record was counted from 10 a. m. to 10 a. m.

It is unnecessary to enter into a description of the data taken from the records of the local office of the United States Weather Bureau, as the instruments, method of exposure and reducing, etc., are all known. It ought to be stated, however, that the 8 a. m. and 8 p. m. means for January and February, as given in Table 1, are those of 1900, and all the other months, from March to December, inclusive, are those of 1899. It was thought best to use the January and February means for 1900 because the observations were made at 6 a. m. and 6 p. m. during January and the first fifteen days of February, 1899. The 12 noon means are taken from the Richard barograph traces for 1899, which are supposed to represent the actual readings of the barometer, therefore 0.03 inch has been added to get the sea-level readings.

THE HOT WEATHER OF AUGUST, 1900.

By ALFRED J. HENRY, Professor of Meteorology.

In normal summer weather, areas of low pressure (cyclones), drift eastward over the northern third of the United States at irregular intervals, generally, however, separated by a period of three or four days. As these lows move across the country the districts within their southern and eastern quadrants come successively within the influence of warm south and southwest winds in advance of the cyclone and there results a temporary warm wave. The warm wave is, however, quickly terminated by local rains and thunderstorms, after which the temperature again rises and the same sequence of events is repeated. In some years the normal eastward movement of areas of low pressure (cyclones) is checked; in such years they form as usual on the eastern side of the Rocky Mountains, or move into the United States from the British Possessions, but instead of drifting eastward persist for days over Montana, the Dakotas, Nebraska, Kansas, Colorado, and Wyoming. The barrier to their eastern movement appears to be the area of high pressure which covers the south Atlantic coast States, and also stretches across the Atlantic to the Azores and the shores of southern Europe.

This area of high pressure is merely a portion of the belt of high pressure which surrounds the globe having its maximum about the parallel of thirty degrees. It should not be conceived that pressure is uniformly high within this belt. A more accurate conception would be to consider the belt of high pressure as consisting of a series of detached areas of high pressure separated by trough-like valleys of lower pressure, the whole system having a very slow movement eastward.

The course of areas of high pressure in the United States, in summer, is generally eastward or southeastward from some point north of the Lake region. When the southeasterly course is pursued the high very often merges with the permanent high off the south Atlantic coast, and passes beyond the field of observation. In some years, however, the lower layers of the atmosphere become stagnated, and the movement of both highs and lows is sluggish and uncertain.

The initial movement which led to the hot wave during August was the slow drift of an area of high pressure southward and southwestward from southern New York, where it was located on August 4, to the Ohio and Middle Mississippi valleys, in which region it culminated about the 8th, in pressures ranging from 30.20 to 30.30 inches. During the prevalence of high pressures over the eastern half of the United States pressure was relatively low over the Atlantic south of the fortieth parallel.

The character of the weather during the heated term, as regards the amount of rain that fell and the vapor contents of the air, varied greatly. In Nebraska, the Dakotas, and Minnesota great quantities of rain fell. In North Dakota the average for the State was about five times the normal. The winds were fresh to brisk, mostly southerly or southeasterly. In Colorado, Kansas, and quite generally east of the Mississippi, there was a deficiency in the rainfall, amounting in some States to 75 per cent of the normal. The winds were gentle, and mostly from a southerly quarter, except in certain districts to be mentioned later. The periods of extremely high temperature were also times of great dryness, and the physical discomfort experienced was not so great as would have been the case with lower temperature and higher humidity. On the other hand it should be remembered that, almost without exception, the days of moderate temperature were also days of high humidity, and caused as much, if not more suffering than those of very high temperature and low humidity.

The geographic extent of the hot wave is shown by the text chart, fig. 2, below. It will be noticed that the warm weather extended from the backbone of the Rocky Mountains eastward to the Atlantic. The temperature on the mountain summits was generally above the normal, but throughout the great basin and the Plateau region it was below normal by amounts ranging from 2° to 6° daily.

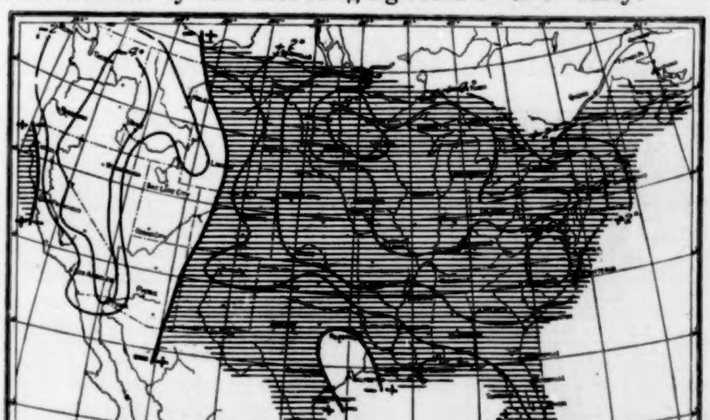

Fig. 2.—Departure from normal temperature, August, 1900.

Within the general area of high temperature may be found small areas of excessive heating, as in the neighborhood of St. Paul and St. Louis. The monthly mean temperature for August at St. Paul was 77.2°, a higher average than has ever before been recorded, and the record goes back to 1820 (using the Army record made at Fort Snelling). At St. Louis the August mean was higher than any that had hitherto been observed; the record in this case goes back to 1836.

Additional statistical details are given in the table following:

Comparative data of temperature and relative humidity for August, 1900.

Stations.	Monthly mean. Aug., 1900.	Monthly mean. Highest previous.	Monthly mean. Year.	Maximum. Aug., 1900.	Maximum. Highest previous.	Maximum. Year.	Number of days above 90°. Aug., 1900.	Number of days above 90°. Number previous.	Number of days above 90°. Year.	Relative humidity, per cent. Aug., 1900.	Relative humidity, per cent. Departure from normal.
	°	°		°	°					%	
Omaha	79.0	80.2	1881	94	105	1874	14	18	1881	72.2	+ 3.0
Davenport	79.8	78.1	1873	97	98	1894	15	12	1881	71.3	+ 3.4
St. Paul	77.2	72.9	1881	96	100	1896	11	7	1878, 1881, 1886	69.9	+ 1.5
St. Louis	83.8	82.5	1881	99	106	1881	24	23	1881	74.6	+ 7.3
Chicago	76.3	75.0	1881	94	98	1881, 1896	10	6	1896	81.6	+13.7
Detroit	75.5	74.1	1881	94	99	1881	8	8	1881	76.6	+ 8.3
Louisville	82.5	81.1	1881	101	105	1881	26	20	1881	73.0	+ 7.2
Nashville	82.4	83.1	1881	98	104	1874	25	......	......	71.8	− 0.5
Cincinnati	80.0	79.5	1881	96	101	1881	15	18	1881	72.2	+ 6.9
Pittsburg	78.7	74.5	1895	98	100	1881	12	15	1881	66.6	− 1.7
Philadelphia	79.2	77.4	1895	101	99	1881	13	10	1896	68.8	− 2.4
New York	76.8	75.5	1872	95	96	1881, 1888	8	7	1896	70.8	− 4.1
Washington	79.6	79.0	1872	101	101	1881	17	16	1872	72.6	− 2.8
Charlotte	81.9	80.9	1881	99	100	1881, 1888	25	20	1896	65.2	−13.0
Augusta	84.0	83.7	1878	102	105	1878	26	27	1878	68.6	−12.0
Savannah	83.9	84.7	1878	102	100	1878, 1899	25	24	1878	83.2	− 0.2

From the 6th to 11th, the period during which the highest temperatures of the month were recorded in Pennsylvania, Maryland, the District of Columbia, and Virginia, the winds were from a northerly quarter. This apparent anomaly may need a word of explanation.

The circulation of air within an area of high pressure, it may be remembered, is clockwise. In the hot spells generally experienced over the eastern part of the United States only a portion of the South Atlantic high extends over the land, the center usually being some distance off the coast. The pressure distribution in such a case would cause southerly or southwesterly winds in the vicinity of Washington, D. C., depending somewhat, of course, upon the position of the center of the high with respect to that city. In the present case the center of the area of high pressure which dominated the weather during the days in question was wholly within and over the land area of the United States, viz, to the southwest of Washington. In this position the natural circulation of the wind in the northeastern quadrant of the high would be from the north or northwest, and such was the case. It is but fair to say, however, that the high temperature in Washington was primarily due to south and southwest winds on the 6th, yet we had the rather extraordinary spectacle of warm, dry northwesterly winds and continued high temperatures for several days in succession, as may be seen by an inspection of the tables following.

The length of time a hot wave will continue is always a matter of some uncertainty. The conditions that favor its continuance are intense local insolation, light variable winds, and possibly the importation of warm, dry air from the trans-Mississippi region.

There is a strong and persistent flow of warm and dry air from the middle Mississippi and Missouri valleys into the semipermanent area of low pressure which covers the Dakotas and the northeastern Rocky Mountain slope during the prevalence of abnormally hot weather in the Ohio Valley and the Middle States. In its ascent this warm, dry air probably mixes very little with the air of contiguous regions, but flows eastward in the general circulation as a fairly homogeneous mass of warm, dry air, with temperature and dew-point considerably above the normal for the season and altitude.

This warm, dry air, flowing easterly in the upper currents should, according to theory, descend in the region of high pressure. Color is lent to the theory that it does so descend by the freedom of the region of high pressure from clouds and the presence of dust and haze. The ordinary Washington summers are free from dust and haze in the upper levels of the atmosphere, but so soon as a hot spell sets in the air

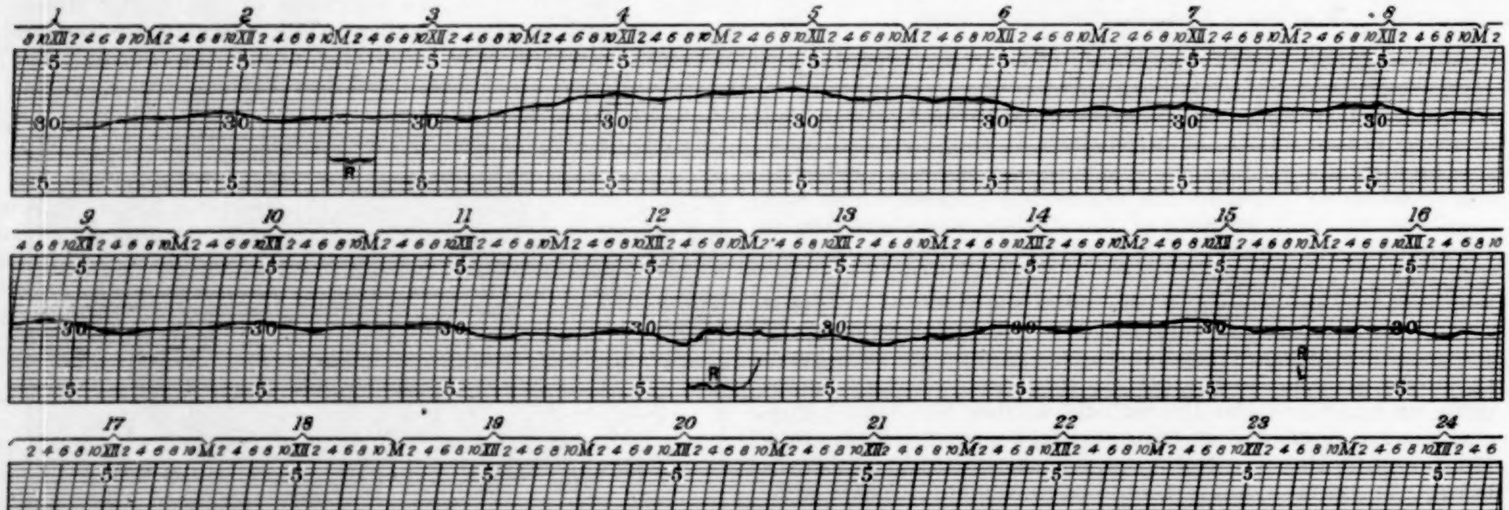

Fig. 3.—Pressure curves for August, 1900.

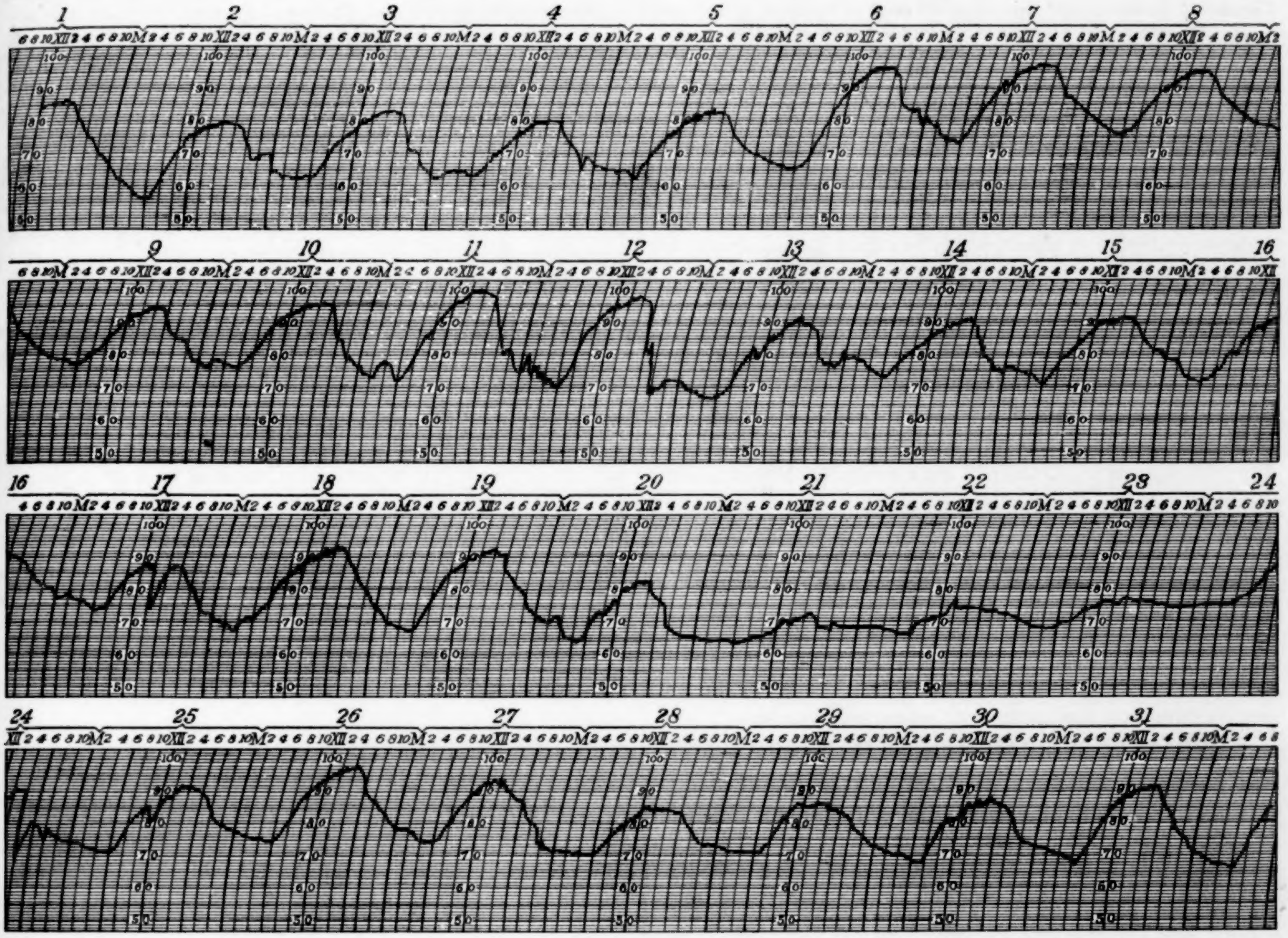

Fig. 4.—Temperature curves for August, 1900.

becomes dusty and hazy; hence we conclude that the hazy condition is due to the importation of dust particles from the westward.

There is some evidence, fragmentary, it is true, that the upper currents, in the level of the higher clouds at least, do not flow constantly from west to east during hot spells as under normal conditions. On several occasions, during the continuance of the hot weather, cirrus and cirro-stratus clouds were observed moving from an easterly toward a westerly quadrant. A number of cases of upper clouds moving from a northerly toward a southerly quarter were also observed. This would indicate, at most, merely a temporary disarrangement or weakening of the prevailing westerly currents in the cirrus cloud level.

Whatever may be the primary cause of the hot wave, it is evident that during its continuance the lower layers of the atmosphere are heated to a much greater altitude than during normal weather conditions, and a much greater impulse is therefore required to overturn existing conditions and bring about rain and cooler weather, thus exemplifying the old saying, "All signs fail in dry weather."

We reproduce in the text, figs. 3 and 4 the automatic records of pressure and temperature at Washington, D. C., for the entire month of August. These instrumental records enable one to form a clear mental picture of two only of the more important elements which are concerned in the development and continuance of a hot wave. The humidity is not recorded except at 8 a. m. and 8 p. m. and its variations for each hour of the day can not, therefore, be given.

The record of the barograph is most interesting; from the 3d to the 6th an area of high pressure moved from southern New York down the coast and spread westward over the Ohio Valley and Tennessee. It will be noticed that while the high was passing over Washington moderate temperatures prevailed, but as soon as pressure began to fall temperature began to rise, even though the winds were northwesterly (see table). After the area of high pressure came the period of high temperature and generally low humidity from the 6th to the 12th. During this period the skies were mostly free from clouds. A few ragged cumuli formed and hung lazily around the horizon, disappearing by sunset. The barometer rose and fell with the regularity of the tide, indeed one could almost tell the time of day by the barometer. This rythmic movement of the barometer is best exemplified in the calm and tranquil atmosphere of the tropics.

On the afternoon of the 12th pressure dropped a little below the usual afternoon minimum and rain fell the first since the 2d. The letter R on the barograph sheets indicates the occurrence of rain. During the remainder of the month the barometer varied but slightly from 30.00 inches until the 30th, when a second high approached from the northeast.

Maximum temperatures and direction of the wind as registered by automatic instruments for each day of the period August 2–11, 1900.

[Wind directions are expressed in percentages.]

CHICAGO, ILL.

Date.	Max. temp.	Percentage of time wind blew from—								
		N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
2	77	4	29	6	6	12	33	7	3	......
3	78	......	7	18	53	17	5	......	......	......
4	94	......	......	......	......	42	48	10	......	......
5	94	......	......	......	12	21	62	5	......	......
6	93	......	......	......	......	32	66	2	......	......
7	92	......	......	......	......	13	81	6	......	......
8	92	......	......	......	1	7	76	16	......	......
9	94	......	......	......	......	3	93	4	......	......
10	94	......	......	......	......	5	91	4	......	......
11	91	2	......	......	......	11	65	21	1	......
Averages	......	0.6	3.6	2.4	7.4	16.3	62.0	7.5	0.4	......

DETROIT, MICH.

Date.	Max. temp.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
2	74	2	32	3	......	4	45	11	3	......
3	78	23	15	34	5	12	10	......	1	......
4	81	......	5	11	86	34	11	3	......	......
5	94	......	......	......	1	26	59	14	......	......
6	93	......	......	......	......	1	79	20	......	......
7	92	......	......	......	......	......	75	25	......	......
8	94	......	......	......	......	......	45	55	......	......
9	90	......	......	......	......	......	56	44	......	......
10	93	......	......	......	......	......	81	19	......	......
11	93	......	......	......	......	......	75	25	......	......
Averages	......	2.5	5.2	4.8	4.2	7.7	53.6	21.6	0.4	......

Maximum temperatures and direction of the wind, etc.—Continued.

PITTSBURG, PA.

Date.	Max. temp.	Percentage of time wind blew from—								
		N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
2	78	9	10	12	18	2	6	7	46	......
3	82	83	10	......	......	......	......	......	7	......
4	85	38	17	16	8	2	......	......	19	......
5	92	21	18	4	2	18	17	4	21	......
6	97	13	......	......	3	......	6	21	51	6
7	95	20	......	......	......	......	......	1	79	......
8	96	31	......	......	......	......	......	......	69	......
9	96	21	......	......	......	......	......	......	79	......
10	97	23	......	......	......	......	......	......	77	......
11	98	33	......	......	......	......	4	20	43	......
Averages	......	29.2	5.5	3.2	3.1	1.7	3.3	5.3	49.1	0.6

WASHINGTON, D. C.

Date.	Max. temp.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
2	80	48	......	......	......	......	......	5	47	......
3	84	2	3	17	5	......	......	5	68	......
4	80	37	12	8	21	......	......	......	22	......
5	84	......	......	......	41	59	......	......	......	......
6	96	1	......	......	......	46	13	38	2	......
7	98	......	25	......	......	......	......	23	52	......
8	96	1	......	......	......	......	......	30	69	......
9	96	1	......	......	......	......	......	1	98	......
10	97	4	......	......	......	......	......	4	87	5
11	101	......	......	......	......	......	......	38	62	......
Averages	......	9.4	4.0	1.5	6.7	10.5	1.3	14.4	50.7	0.5

NOTES BY THE EDITOR.

WEATHER BUREAU MEN AS INSTRUCTORS.

It has long been evident that meteorology is but too slowly making its way into universities and colleges as an important branch of study. Some progress has been achieved in the public schools where meteorology is sometimes taught independently but more frequently as a branch of physics or as an essential part of physical geography. It has long been known that the Weather Bureau observers and officials have done all that they could do, consistently with other duties, to supply the demand for instruction and to dissipate the ignorance that prevails in many minds by reason of which meteorology has been associated with astrology, folklore, animal instinct, and other obscure, if not unscientific, fields of thought.

There is no better method of learning all that is known about a given subject than by undergoing the labor involved in preparing a lecture thereon, either for the public or for the college student. To do this successfully one must follow the Baconian rule, he must read in order to become full, he must write in order to become accurate, and must talk in order to become fluent. Of the many lines of work by which the members of the Weather Bureau service may benefit the service and the country, we put the ability to lecture and instruct in the front rank alongside of the ability to make better forecasts, or long-range forecasts, or to invent devices for prevention against damage by hail, frost, wind, and other meteorological elements.

The Editor conceives it to be quite important that the members of the service should stimulate each other in this good work. To this end he has compiled the following extensive collection of abstracts from both the annual reports of the respective stations and especially from the replies to a special circular letter of July 14, 1900. These abstracts are generally in the exact words of the original replies, the few changes that have been made being necessary only for greater perspicacity.

A.—EXTRACTS FROM LAST ANNUAL REPORT OF STATIONS.

P. Connor, Local Forecast Official, Kansas City, Mo.:

The subject of meteorology has been kept before the community quite prominently. The official in charge delivered a discourse before one of the high schools, and read a paper entitled: "The weather—something regarding its make up and effects," before the Commercial Club, at the solicitation of that body. Another paper was prepared (and approved by the Central Office) to be read before the Academy of Sciences toward the close of the year, but the absence from the city of several of the more prominent members, suggested the advisability of holding it for a future occasion.

The central high school has adopted meteorology in its curriculum, and made it one of the elective studies. The first class was formed during the winter and numbered about 25. Next year a large class is anticipated. The class and teacher have visited this office to see the practical side of the subject.

Maps and weather information generally have been eagerly sought by schools in Kansas and western Missouri, and many teachers from those States have visited this office.

S. W. Glenn, Local Forecast Official and Section Director, Huron, S. Dak.:

Informal lectures on the use of meteorological instruments and weather maps were given to the local high school class in physics, and by mutual understanding between the official in charge and the president of the State Agricultural College, the students of that institution visit the office singly and in numbers for instruction in meteorology.

T. B. Jennings, Section Director, Topeka, Kans.:

In February last I delivered an address, by invitation, before the Farmers' Institute at Berrytown, this county, on the United States Weather Bureau in its relation to agricultural interests.

In November, January, and March, I lectured before the teachers' association of this city, treating of the composition of the atmosphere, its changes in weight, temperature, and moisture, its general and accidental movements, instruments for measuring its weight, temperature, moisture, and movements, explanation of the instruments, the "photographing" the conditions twice daily by means of synchronous observations charted on maps, and the construction of such a map from a bulletin published in one of the Chicago dailies.

In June such a lecture was also delivered before the County Teachers' Institute at the High School Building.

In May a lecture on the atmosphere and the Weather Bureau instruments was delivered before the eighth grade in the Potwin School.

T. S. Outram, Section Director, Minneapolis, Minn.:

The public schools in the city, and in other parts of the State, continue to take an interest in the study of meteorology, and many of the teachers use the daily maps in their classes in physics and physical geography. In the summer school at the University of Minnesota, last July and August, a special study was made of the daily weather maps and the methods of using meteorological instruments.

A. F. Sims, Local Forecast Official, Albany, N. Y.:

The most important case in which the official records were used in the courts was a test case in the State court of claims. The official in charge was subpœnaed and took advantage of the opportunity offered to deliver an impromptu lecture on elementary meteorology to the judges of the State court, of which the Hon. Charles G. Saxton is president. Some time after the trial, Judge Saxton in conversation with me referred to my testimony before the board and expressed a desire to learn more of the modus operandi of the Weather Bureau. The case above referred to was worth $100,000 to the State of New York.

By direction of the Chief of the United States Weather Bureau, and under the auspices of the State Board of Public Instruction, I lectured on elementary meteorology at the Teachers' Institutes held at Chautauqua, N. Y., and Thousand Island Park, N. Y.

During the winter months I lectured at the High School, Rensselaer, N. Y., also, before the Literary Association, Cooperstown, N. Y. The kindergarten work attracted general attention at home, and it is now at the Paris Exposition.

Questions in elementary meteorology are incorporated in the examination papers of the regents of the University of the State of New York.

Many classes from city schools, within a radius of 60 miles of Albany, visited the station during the year, and had the instruments explained. The Normal College interest in our work is very gratifying.

Mr. J. Warren Smith, Columbus, Ohio:

I continued the course in meteorology at the Ohio State University during the spring term of ten weeks, the lecture hours being at 4 p. m. on Tuesdays and Thursdays. At these hours this work takes but little time from the office hours, and I believe is not only of direct benefit to the university, but aids in raising the standing of the office and Bureau in the community. An official request has been made that the lectures be continued during the coming year.

At the request of the Secretary of the State Board of Agriculture the official in charge allowed his name to be listed with those from the executive force of the Ohio Agricultural Experiment Station and the Ohio State University as an available speaker at farmers' institutes. Fully half a dozen institutes were attended, four lectures were canceled because of my duty at the Central Office during February and March, and fully a dozen requests were not accepted because they came at a time when office duties would not admit of my absence. There seems to be an increasing interest among farmers in this State to know more of the work of the Bureau and to receive its benefits. Addresses were also given at the annual meetings of the State Board of Agriculture and the State Agricultural Society held at Columbus in January. That these addresses were well received is evidenced by the fact that two requests have been received to speak at grange picnics during the summer. At one the writer is on the program with the master of the National Grange, and at the other with the president of the Ohio State University.

Charles Stewart, Observer, Spokane, Wash.:

Three lectures were given by the observer in charge, two in the public schools, and the last at Gonzaga College, Spokane; it is believed these lectures were much appreciated.

Several times during the year teachers from the public schools, with their pupils, and the superintendent of kindergartens, with the class of young ladies studying to be kindergarten teachers, visited this office and were addressed by the observer in charge on meteorological instruments and kindred matters. Several times during the year other individuals have visited the office for the purpose of becoming acquainted with meteorological instruments.

B.—Extracts from replies to circular letter of July 15, 1900.

R. G. Allen, Section Director, Ithaca, N. Y.:

Prof. R. S. Tarr gives a course in elementary meteorology two hours a week; one for recitation, the others for lectures, illustrating by lantern slides and the weather map, and giving considerable attention to forest influences. This course is required of students in forestry, with others it is elective.

R. L. Anderson, Observer, Hannibal, Mo.:

Have explained the manner of recording meteorological observations to the pupils of the high school who have visited this office.

Wayland Bailey, Observer, Cedar City, Utah:

Three lectures were delivered before the public school children of this town. They were short talks on the work of the Weather Bureau and the movement of storms and clouds.

S. S. Bassler, Local Forecast Official, Cincinnati, Ohio:

Not any direct instruction in meteorology except occasional lectures and talks to night schools and special classes by myself. Instruction has, however, been given to classes or squads of students visiting the office. The subject is taught to some extent in the university and the city schools in connection with physics and physical geography. An effort will be made this year to have the subject introduced as a separate study in the university and all assistance possible will be offered.

J. W. Bauer, Section Director, Columbia, S. C.:

Have delivered two lectures in the high school of Columbia on this subject during the spring of 1898. Have also delivered a lecture on the same subject to the students of Columbia College, S. C., on March 23, 1900, and to the students of the Winthrop Normal and Industrial College, Rock Hill, S. C., on April 20, 1900.

Edward A. Beals, Forecast Official and Section Director, Portland, Oreg.:

No one at this station is now engaged in lecturing. I have been asked by the president of the University of Oregon, at Eugene, to give a lecture in the fall of 1900 upon explorations in the upper air by means of kites, and I have agreed to do so, provided I can obtain a leave of absence from the Chief of the Bureau for this purpose.

S. M. Blandford, Section Director, Boise, Idaho:

I have delivered occasional lectures in the common schools in this city. The lectures were general in character and principally explanatory of the work and aims of the Bureau. I have made arrangements with Prof. J. W. Daniels, Superintendent of Schools, to address the high school class semimonthly during the next school year. It is proposed to confine the lectures to meteorology and to require the pupils to furnish occasional essays.

J. P. Bolton, Observer, Fresno, Cal.:

It has been the practice at this station for some years to give a lecture to the physical geography class in the high school once a year. I have delivered the lectures referred to during the past four years. The scope of the instruction given has been chiefly confined to the law of storms, methods of forecasting, and the use of meteorological instruments.

E. H. Bowie, Observer, Dubuque, Iowa:

I have in the past been invited to give occasional lectures on meteorology before the students of the Dubuque High School, the Dubuque Teachers Institute, and to give one of a series of popular lectures before the Young Men's Christian Association. The lectures delivered have dealt with the construction and use of the different instruments employed in meteorology, a study of the weather map, the present and past methods of weather forecasting, and the climatology of the United States. In this connection I have to recommend that a series of lecture charts, illustrating the movement of storms, the distribution of precipitation in the United States, and the extreme and annual mean temperatures, be prepared by the Central Office and issued to the stations for use in lecture work. In the past I have had to rely altogether on the blackboard for illustrations, and I have found it quite unsatisfactory.

Al. Brand, Observer, Atlantic City, N. J.:

The only effort along this line was a talk relative to the character of the work performed by the Weather Bureau, the instruments used in said work, and its aim toward serving the general public, delivered before the Women's Research Club of Atlantic City who visited this office by invitation on February 15, 1900. Several of the more advanced classes of our high school have also visited this office and been entertained in the same manner.

Allen Buell, Observer, San Antonio, Tex.:

There is no one engaged in lecturing. It is my purpose, however, to do something in that line the coming winter.

Ford A. Carpenter, Observer, San Diego, Cal.:

Occasional lectures and talks have been given during the past few years, as follows: Brief history of the weather service at the San Diego

State Normal School; the relation of the Weather Bureau to the public at the San Diego High School; outlines of the principles of meteorology at the National City High School and the climate of the State and city at the San Diego public schools. In some instances the lectures were in series in order to cover the subjects named. The above list does not include lectures and informal talks which I have delivered to the Chamber of Commerce, Board of Trade, the various local scientific societies, etc.

F. P. Chaffee, Section Director, Montgomery, Ala.:

No systematic course of instruction has been given, but I have lectured in the public schools in this city during the past year, as follows: March 7, Satre street Eighth grade School: subject, Winds and their causes. May 17, Girls' High School: subject, How we tell about the weather, being a general discussion of meteorology from a theoretical and practical standpoint, and an explanation of the method by which weather reports are now collected and forecasts made by the Weather Bureau. It is my intention during the coming school year to make a more determined effort in the matter of instruction in meteorology in educational institutions in this city and vicinity, and if possible, to arrange for some systematic course of lectures on this subject in the public schools.

George M. Chappel, Local Forecast Official, Des Moines, Iowa:

I delivered a lecture at Highland Park College, Des Moines, in January, 1898, on the history of the weather service in the United States and the practical working of the service at that time, explaining and exhibiting the instruments and giving a brief outline of the method of taking observations and disseminating them throughout the country, also making a weather map and giving an explanation of it.

Isaac M. Cline, Local Forecast Official and Section Director, Galveston, Tex.:

I lectured once a week during the term in the department of medicine of the University of Texas. I inclose a page from the Catalogue of the University which shows the character and scope of the instruction. Instruction is given by systematic lectures. The course embraces briefly a description of instruments and methods; the origin of the atmosphere, etc. (See pages 31 and 32 of the Catalogue of the University of Texas.) Charts and diagrams are used where practicable to illustrate the more important features of the lecture. This course is given with a view to increasing the general interest in the work of the Bureau.

Norman B. Conger, Inspector and Marine Agent, Detroit, Mich.:

I have given two lectures, one at the High School at Lansing, Mich., and the other before the Detroit School for Boys, Detroit, Mich. Both of these were informal talks before the classes. I have given a series of lectures before farmers' institutes at different points in the State during the winter of 1890-91, and also in 1895, at Maybee, Mich., before farmers' institutes, and several lectures at Detroit, Mich., before the Shipmasters' Association, Lodge No. 7.

F. H. Clark, Observer, Binghamton, N. Y.:

Two years ago, I extended a general invitation to the teachers of the public schools of this city to visit the office with their pupils. This invitation has been taken advantage of by several teachers and their pupils on different occasions, when practical talks on meteorology and explanations of the weather map and instruction have been given.

Maurice Connell, Observer, Red Bluff, Cal.:

I have been in the habit of delivering occasional lectures to the pupils of the Red Bluff High School at each school term on meteorology and kindred subjects. Pupils of both high school and grammar school invariably visit my office at least once during school term, for the purpose of receiving practical lessons in meteorology. Many invitations are received by me from outside country schools to deliver lectures, but being alone on station I am compelled to decline all invitations outside of Red Bluff.

Thomas Crawford, Observer, Rapid City, S. Dak.:

No lectures of any kind have been given. I suggested to the superintendent of schools in this city a course of instruction in meteorology, and an explanation of the daily weather map, to be given in the high school once a week, but he gave me but little encouragement.

D. Cuthbertson, Local Forecast Official, Buffalo, N. Y.:

On several occasions lectures on the working of the Weather Bureau, its usefulness, etc., have been given in the public and high schools of this city. The office has been visited annually by the graduating classes of the public, normal, and high schools to obtain practical instruction in the use of instruments. A course of lectures on the use of the barometer, on the weather maps, and on the phenomena of storms on the lakes was given before the Shipmasters' Association.

R. H. Dean, Observer, La Crosse, Wis.:

No instruction has been given. It has been my intention to give some instruction in schools but until now the routine work has taken all my time. I hope to be able to give instruction to classes in the high school if it is agreeable to the officials.

Lee A. Denson, Observer, Meridian, Miss.:

The only instruction given by me has been the furnishing the daily weather map and explaining the instruments, the process of map making and other points of general interest to the classes in physics and physical geography visiting this station from the East Mississippi Female College, the Moffet-McLaurin Institute, and the public high school all of this city.

H. P. Dick, Observer, Kalispell, Mont.

During the past six months the Washington issue of daily weather maps has been used by the schools in this place, and a limited number of scholars instructed at this office in the use of the several meteorological instruments comprising the equipment of a regular observing station.

S. L. Dosher, Observer, Hatteras, N. C.:

No instruction given at this station. Shortly before I left the Charlotte station I delivered a lecture on the subject of meteorology in the class room of the Young Mens' Christian Association, for the benefit of the Association.

O. L. Fassig, Section Director, Baltimore, Md.:

I have held the position of intstructor in meteorology in the Johns Hopkins University during the past two years. In this capacity a regular course of about twenty lectures concerning the general subject of meteorology and climatology has been delivered at the University. The course has become one of the required studies for graduate students in the geological department of the University.

The hearty cooperation established by order of the Secretary of Agriculture between the Weather Bureau and the Johns Hopkins University made it possible to carry to a successful issue an extended course on meteorology before the public school teachers of Baltimore. A class of about 80, including 6 university students, attended these lectures during January, February, and March of the present year. The course comprised 20 lectures, the scope of which, as well as the method of presentation, may be judged from outlines and diagrams already sent to the Chief of the Weather Bureau. The University has honored me by a renewal of my appointment as instructor in climatology.

F. J. Walz, Local Forecast Official and Section Director, Baltimore, Md.:

I have given occasional public talks on meteorology or the work of the Weather Bureau.

T. J. Considine, Observer, Erie, Pa.:

During the winter of 1898-99 I had under instruction in elementary meteorology a small class of young men, members of the educational branch of the Young Men's Christian Association; also occasional informal talks were given, at the request of the teachers, to the students of the class in physical geography at the Erie High School.

W. M. Fulton, Observer, Knoxville, Tenn. (Professor Fulton is a professor in the University of Tennessee):

An important branch of the work at this station is the course of lectures upon meteorology given by me at the University. This lecture course was inaugurated at the beginning of the spring term of the University in 1898. Since that time a growing interest has been manifested in this work by the student body. At the opening of the recent college session there was a decided increase in the number of applicants for admission to the course, and it is believed that this department is destined to become, if not one of the most largely patronized, one of the most useful departments in the University. When the course was first established in the University it was made an elective study, i. e., not required for graduation in any department in the University. It has recently been incorporated into the agricultural department, so that students in this department must complete the work in meteorology before diplomas can be granted them.

The course consists of three periods per week of one hour each, throughout the college year of nine months. One of these periods is devoted to a lecture, one to a quiz, and one to laboratory work, so that during the college year there are 34 lectures, 34 quizzes, and 34 laboratory exercises. Davis's Elementary Meteorology is used for parallel reading, and the book is completed during the year. Stereopticon illustrations, enlarged charts, and mimeographed notes, are used freely to illustrate and supplement lectures.[1] The students, as a whole, evince much interest in the subject, and do good work. A number of requests

[1] A nearly complete set of these notes is filed at the Central Office.—Ed.

to have the course extended have been received, but this is not thought advisable at present.

In addition to the above, the observer was requested to deliver a series of practical lectures in connection with a "short course in agriculture" which has been provided for by the Tennessee Agricultural Experiment Station during the winter months. This short course is designed to meet the needs of a large number of farmers, and farmers' sons, who can not afford to absent themselves from the farm at any other time in the year. Although the course was opened this year for the first time, the attendance was larger than was expected. The meteorological lectures were twelve in number, eight of which were devoted to a detailed discussion of the work of the Weather Bureau. They were well received.

By permission from the Chief of the Weather Bureau, the observer has been allowed to act as "meteorologist" of the Tennessee Agricultural Experiment Station since the beginning of the college year in 1899. This position carries with it no pecuniary reward, but it is thought that it will afford additional opportunity for advancing the interests of the service.

Public lectures have also been given from time to time during the year. Among these was one at Carson and Newman College, Mossy Creek, Tenn., and one each before two scientific organizations in Knoxville. Farmers' institutes have been attended at the following places: Boons Creek, Tenn.; Rogersville, Tenn.; Morristown, Tenn.; Jackson, Tenn.; Larimore, Ala.; and Griffin's schoolhouse, Tenn. The observer was given a prominent place on all programs at those institutes, and took an active part in the work. The work of the Weather Bureau was explained and discussed. Especial attention was given to the climate and crop service; cotton region service; cold wave and frost warnings, with some discussion of methods of protection from frost; weather and temperature forecasts and daily weather charts. The institutes, without exception, were well attended by intelligent, representative farmers. A decided interest was everywhere manifested in the presentations of the Weather Bureau work. In several instances the observer was requested to extend a unanimous vote of thanks to the Honorable Secretary of Agriculture and the Chief of the Weather Bureau, for having the work brought before the institutes. Question boxes contained many pertinent queries concerning all phases of the work. It was my endeavor to first explain the methods which the Bureau is employing to aid the farmer, and secondly, to furnish information that would enable him to derive the greatest benefit from the service. There was every indication that these two ends were accomplished.

Plans have been made for extending the lecture work during the ensuing year. Lectures will be given before the summer gatherings at Monteagle, Tenn., on July 9 and 10, 1900. Through cooperation between the local superintendent of education and the University of Tennessee, a well arranged course of lectures will be given by members of the University faculty in the public schools of Knoxville. A number of lectures upon meteorology will be included in this course.

While the lecture work outlined above is very onerous to the observer, coming as it does in addition to regular station duties, it undoubtedly redounds greatly to the interests of the service. By this means is accomplished the twofold end of offering to the public the practical benefits of the service, and at the same time, imparting information which will enable the individual to utilize these benefits to the best advantage. Further than this, it brings the work of the Weather Bureau to the attention of many people who can be reached in no other way. And of more importance still is the fact that our young men, while getting their college education, are having instilled into their minds the great scientific principles upon which the work of the Bureau is founded. The service is thus held up to them in a new light; it is raised from the plane of mere utilitarianism to the broad field of scientific progress, and there is added to it new dignity which commands new respect. The possibilities for future good which may accrue from this source alone are too broad and too far reaching for conjecture. Nor are evidences of appreciation wanting on the part of the public for this Weather Bureau extension work, if such it may be termed. These are to be seen at nearly every hand. In fact, if the limited experience at this station will justify any definite conclusions, it must be said that meteorological lectures, properly presented by the officials of the Weather Bureau in our educational institutions and before the public, add greatly to the public usefulness of the service, and help much to establish it firmly and permanently in the esteem of the people.

With regard to the lecture at Mounteagle, Tenn., above referred to, Mr. Fulton reports:

These lectures were delivered on July 9 and 10 in the Auditorium, before the summer gathering of school teachers from all parts of the State. The first lecture was entitled "Scientific methods of observing the weather." In this lecture the field of observational meteorology was briefly reviewed. Stereopticon views of the various meteorological instruments were given, and the instruments were briefly explained and discussed in a popular way.

The second lecture was entitled "Scientific weather forecasting." On this occasion a series of synoptic weather charts were presented upon the screen, showing the progress of a storm and a cold wave across the United States, with the weather changes accompanying each. Then followed photographs of lightning, tornadoes, clouds, etc.; a popular discussion accompanied the views.

In both lectures, the methods employed in the Weather Bureau served as a nucleus about which additional matter was grouped.

There were about 1,500 people on the grounds at the time the lectures were given, many of whom were teachers from Tennessee and neighboring States. Of those on the grounds, about 800 were present at the first lecture and about 1,000 at the second. The audiences seemed to be interested in the subjects presented, and the lectures were well received.

George E. Franklin, Local Forecast Official, Los Angeles, Cal.:

As yet no systematic course has been undertaken, but during the winter season classes from the schools visit this station, while engaged in the study of physical geography and physics, to obtain an insight into applied meteorology. The information given practically amounts to lectures or instructions in meteorology, and is not only appreciated but is of much assistance to the pupils.

It is proposed during the winter to prepare articles on meteorology and the practical workings of a Weather Bureau station for public reading, and, as a preliminary, Mr. Fuller, Observer, Weather Bureau, will read a paper on the daily weather map at Long Beach during August.

E. J. Glass, Section Director, Helena, Mont.:

Occasionally classes from the high school or other educational institutions visit the office of the Weather Bureau to examine and inquire into the workings of the various instruments. To all such persons as much time is given as the work of the office will permit.

S. W. Glenn, Local Forecast Official and Section Director, Huron, S. Dak.:

The official in charge gave informal instruction to the local high school class in physics last winter, the class coming to the office for the purpose, but the instruction covered only a description of the instruments, the manner of preparing weather maps, the movement of areas of high and low pressure, and the practical use that might be made of the maps for educational purposes.

R. Q. Grant, Observer, Lexington, Ky.:

Beginning August 1 next, I shall take up systematic instruction in meteorology in the Kentucky State College, a number of students desiring to pursue its study during vacation. Waldo's Elementary Meteorology will be used as a text-book, but will not be adhered to in the recitation. An outline of the subsequent lesson will be furnished each pupil that he may be aided in obtaining information from other sources. The general scheme as presented by Prof. Wm. H. Brewer of Yale College in the April number of the Monthly Weather Review, will be followed with probably greater attention to detail than would be afforded in the thirteen lectures which his scheme is intended to cover.

A. E. Hackett, Section Director, Columbia, Mo.:

At the present time no instruction in meteorology is being given. During the past two years meteorology has been taught in the State University by one of the members of the faculty, and the students of the University, and also those of the various academies and colleges located here frequently visit this office, either individually or in classes, and upon such occasions I am frequently requested to explain various meteorological phenomena. I have also delivered lectures occasionally before physical geography classes in the Columbia Normal Academy, and before teachers' institutes.

George Hass-Hagen, Observer, Tampa, Fla.:

I have occasionally given talks on meteorology and Weather Bureau work to high school classes, but have never attempted anything further on account of a weak voice and catarrhal trouble.

J. S. Hazen, Observer, Springfield, Mo.:

I gave an address on the history, growth, and work of the Weather Bureau, as one of a series of popular talks on popular subjects which was inaugurated by the Young Men's Christian Association in connection with a night school last winter. The occasion was well advertised, and a large number of teachers and students attended. The talk was followed by a blackboard illustration of cyclonic movement as illustrated by the daily weather map.

A talk conforming in part to the above was recently given at the request of President Fuller, of Drury College, before a large body of teachers who are attending the Drury Summer School. Practically the same ground was also covered in an address before a class from the normal school, and also before the physical geography class in the high school during the past winter.

R. J. Hyatt, Local Forecast Official, St. Louis, Mo.:

No lectures on meteorology have been delivered to schools at this station.

The official in charge delivered two lectures to young men's clubs some time ago. The scope of the lectures embraced the explanation of the weather maps, movement of storms and cold waves, and a description of the meteorological instruments in use by the Weather Bureau.

James Kenealy, Local Forecast Official, Cleveland, Ohio:

Within the past year I have accepted invitations on two or three occasions to attend meetings of literary societies and give a description of the work of the Bureau; how foreknowledge of the weather is acquired, what instruments the office is equipped with, etc. Mr. H. G. Todd has also delivered an address on the climatic conditions of the United States before the local Chautauqua circle, of which he is a member.

C. W. Ling, Observer, Havre, Mont.:

On January 17 last, I delivered a lecture to the pupils of the grammar school, Havre, Mont.

G. A. Loveland, Section Director, Lincoln, Nebr.:

At the request of the regents of the University of Nebraska, I am preparing a series of thirty-five lectures on meteorology to be used, in connection with text-books, in giving instruction to a class in meteorology in the University, commencing next September and meeting once a week during the school year. It is my purpose to take up the subject as completely as the time and my knowledge of meteorology will allow.

Alexander G. McAdie, Forecast Official, San Francisco, Cal.:

I am, by the action of the board of regents, honorary lecturer in meteorology in the University of California. Four lectures were delivered last year, and this year a course of lectures will be offered, based upon the course outlined by Professor Abbe in the Monthly Weather Review for September, 1899. I am very anxious to inaugurate this work at the University of California. My official duties, however, are such that but little time remains to me for this work and every course of lectures proposed will be accompanied with a proviso that official exigencies may prevent its delivery. May I suggest that a few reprints of the course referred to above be furnished to this office?

J. B. Marbury, Local Forecast Official, Atlanta, Ga.:

During the spring term of 1900 a class of boys from the high school of this city was brought to the office on several occasions for the purpose of obtaining information as to the various instruments used, etc. On these occasions short talks were given setting forth the construction and use of the instruments used, the methods of their practical use, and the methods of making the daily weather maps, forecasts, etc. Considerable interest was aroused in this way and it is more than probable that I shall make several talks before the boys' high school during the coming year. There are no colleges or universities here except negro institutions.

A. J. Mitchell, Section Director, Jacksonville, Fla.:

Arrangements have been perfected for me to deliver several lectures during the coming fall term at the State Agricultural and Mechanic College, Lake City, Fla. The trustees desired that there should be weekly lectures, but the Chief of the Bureau decided that it would be impracticable, owing to pressing station duties.

E. H. Nimmo, Observer, Evansville, Ind.:

On various occasions I have entertained classes at this office from the Evansville schools by showing and explaining to them the workings of the instruments in use and the work of the Weather Bureau generally.

B. S. Pague, Local Forecast Official, Detroit, Mich.:

Upon one occasion I delivered an address before an educational club of one of the Methodist churches of this city when I briefly outlined the Weather Bureau and its work.

W. S. Palmer, Section Director, Cheyenne, Wyo.:

In May, 1899, I delivered a lecture before the Cheyenne High School on Storms and Weather Forecasting, but have given no special lecture or instruction since that date.

Orin Parker, Observer, Rochester, N. Y.:

Beyond a couple of lectures delivered some time ago by myself, no one at this station is engaged in work of this character.

L. M. Pindell, Observer, Chattanooga, Tenn.:

Occasionally I am requested to deliver a talk on my work before a class or school. The only talk or lecture given by me during the past year was on March 22d, on the Weather Map, before the graduating class of the Highland Park High School.

U. G. Pursell, Observer, Sioux City, Iowa:

No lectures have been given by myself or assistant, but occasionally teachers have come to this office for instruction, which they in turn gave to their classes. I have encouraged such visits and have supplied teachers in neighboring towns with all the printed information at my command, in explanation of the weather maps and meteorology.

George Reeder, Observer, Corpus Christi, Tex.:

During the winter of 1899-1900, I gave occasional short lectures in my office to the teachers of the Corpus Christi High School. These lectures covered the following subjects in the order named: I. The Atmosphere. II. Pressure, the barometer. III. Temperature, the thermometer. IV. Winds, the anemometer. V. Cyclones and anticyclones. VI. The Daily Weather Chart. These short lectures, given after office hours, were most favorably received. In fact, Professor Crossley was so favorably impressed that he has requested that I give the lectures in the school during the coming winter of 1900-1901.

H. W. Richardson, Local Forecast Official, Duluth, Minn.:

I have given a few lectures or addresses to high school classes and teachers attending normal and summer schools in Duluth. These lectures were general in character, combining such subjects as the work of the Weather Bureau; instrumental equipment; observations; forecasts, and meteorology in a single lecture.

While stationed at Columbus, Ohio, I delivered several addresses of this character at farmers' institutes, the Engineers' Club, the Board of Trade, and the Ohio State University. A systematic series of lectures was in course of preparation for use at the Ohio State University, but my transfer to Duluth caused an abandonment of the plan so far as I was concerned. Routine duties at the Duluth station prevent systematic work in this line, but lectures of a general character will be given as occasion requires.

Frank Ridgway, Local Forecast Official, Pittsburg, Pa.:

I have frequently invited to the office instructors of the educational institutions of this vicinity who have brought many of their students, to whom I have given such instruction, information, and data as were available. Students and other individuals interested in meteorological studies make frequent visits to the office in quest of information pertaining to the study of the weather maps which are furnished to the schools for that purpose.

John R. Sage, Section Director, Des Moines, Iowa:

Within the past few years I have given one lecture at each of the following institutions: Drake University, Des Moines, Iowa; the Highland Park College, Des Moines, Iowa; Capital City Commercial College, Des Moines, Iowa; State Agricultural College, Ames, Iowa. The principal subjects have been: The general work of the Weather Bureau in its relation to agriculture and also phenomenal storms.

I have also delivered lectures to a large number of farmers' institutes in different counties in this State, using the same general subject.

G. N. Salisbury, Section Director, Seattle, Wash.:

Occasional talks on the work and methods of the Bureau have been given to high school classes in physical geography when they have visited this office. An attempt will be made to interest the faculty of the State University in the subject the coming year. It is one in which no interest has been manifested by that institution.

C. F. Schneider, Section Director, Lansing, Mich.:

I have always taken the high school class in physical geography during the spring term for about a week and given lectures of about half an hour duration on practical meteorology. The lectures were talks regarding the organization and equipment of a regular Weather Bureau station, the making of a weather map, and the use of the same in forecasting.

Geo. W. Scott, Observer, Lander, Wyo.:

I have not been invited to speak upon our work since leaving Yankton in 1894; shortly before leaving that place, I gave a talk upon storms before the physics class in Yankton College. The principal of Lander public schools has several times sent his class in philosophy to my office to have the barometer explained, which explanation is always cheerfully given.

L. G. Schultz, Observer, Fort Worth, Tex.:

The duties at this station will not permit of giving instruction in meteorology in institutions of learning. Several invitations to lecture before the summer normals for teachers, in this and the neighboring counties have been declined; but weather maps and meteorological data

are furnished such gatherings for class-room work, and every assistance is given by letter to the instructors conducting the courses in meteorology and physical geography.

W. A. Shaw, Observer, Northfield, Vt.:

For the past four years, during the winter term, I have given a course of ten lectures in elementary meteorology to the members of the senior class of Norwich University. The course is based upon the works of Ferrel, Davis, Waldo, and J. W. Moore, and includes, briefly, history of meteorology; the atmosphere; temperature; pressure; winds; precipitation; atmospheric optics; general and secondary circulation of the atmosphere; climate; weather; forecasting. Waldo's Elementary Meteorology is used as a text-book.

J. P. Slaughter, Observer, Pueblo, Colo.:

There are neither universities nor colleges in this city. The city high school gives no instruction in meteorology further than a limited course in physical geography. During the past four years I have lectured twice before the Teachers Institute and three times before the students of the high school. These lectures have been discussions of the practical working of the Bureau, forecasting, distribution of warnings and their utility rather than an explanation of the principles of meteorology as a science.

J. Warren Smith, Section Director, Columbus, Ohio:

I gave a course, covering twenty hours, at the Ohio State University during the spring term of 1899, and again in 1900. The text-book used was Davis's Elementary Meteorology, supplemented by the daily weather map, and the work done during the term was divided up into illustrated lectures, recitation and laboratory work, or practise in chart making, and in handling the instruments. The subject has been given a regular place in the third year in the Agricultural College, it is *required* of the students in agriculture and horticulture and is elective in other departments. The work is given at 4 p. m., Tuesdays and Thursdays, during the spring term of ten weeks.

P. H. Smyth, Observer, Cairo, Ill.:

Last winter I was requested by a member of the school board, and also by the principal of the high school, to lecture at the high school, and consented to do so; but the practise of weekly lectures was discontinued.

Charles Stewart, Observer, Spokane, Wash.:

Since resuming charge of this station I have given several occasional lectures, four in number in Spokane, three in the public schools, and one at Gonzaga College. The lecture at Gonzaga College was to the faculty and advanced students; the subject, Weather changes and their causes, touching upon forecasting and work of the Weather Bureau. The lecture was illustrated by means of four large charts, prepared at this office, showing ideal cyclonic and anticyclonic areas, with their respective systems of isotherms, winds, etc.; and types of winter and summer maps. This lecture seemed to very much interest those who heard it, and the lecturer was invited to come again and lecture at the college.

The addresses to the public schools were similar to the lecture given at the college, only of more superficial nature. It is my intention, when the present vacation of the educational institutions at this place is closed, to lecture in the interests of the service, as well as in the interests of the public, whenever time and opportunity permit.

O. D. Stewart, Observer, Grand Junction, Colo.:

During May, 1899, I gave an address at the Teller Institute (United States Government Indian School), near this place, on the work of the Weather Bureau. The address was necessarily elementary in character. That it was appreciated was evidenced by the intelligent questions asked by the pupils.

L. M. Tarr, Observer, New Haven, Conn.:

Classes from Yale University, Giles Grammer School, high school, and also many teachers have visited the office and been instructed in the use of the instruments and the work of the Bureau, but no systematic course of instruction has been given.

E. C. Thompson, Sandusky, Ohio:

In May I gave a talk before the teachers of Sandusky, giving a short history of the service, what it is doing, and how it is doing it.

T. F. Townsend, Section Director, Philadelphia, Pa.:

Since my assignment at the Bourse I have given the public informal talks and descriptions of the meteorological instruments of the Bureau and their uses. During the coming school term teachers and their classes will be invited to visit the Bourse exhibit for the purpose of receiving instruction in meteorology.

E. C. Vose, Section Director, Parkersburg, W. Va.:

I give occasional talks as occasion may require.

C. F. R. Wappenhans, Local Forecast Official, Indianapolis, Ind.:

It has been a common occurrence for quite a number of years, during the winter, for teachers in public schools, the high school, or the industrial school to bring their classes occasionally to the office for instruction on the instruments and their use, on theoretical and practical meteorology, drawing of maps, forecasting, etc. Last winter I lectured on similar subjects at the Indiana College of Medicine, and I read a lengthy paper at the Indianapolis Literary Club on the history and development of the Weather Bureau, its work in detail, on theoretical and practical meteorology, forecasting and dissemination of forecasts or warnings of any kind and the statistics collected by the Weather Bureau.

Lucius A. Welsh, Local Forecast Official, Omaha, Nebr.:

No systematic course of lectures has been given, but as stated in my annual report for the fiscal year ending June 30, 1900, a large number of classes in the city schools visited the office during the school year and were instructed in the work of the Bureau. The preparation and purpose of the daily weather map was fully explained, and a short lecture on the general movement of storms in the United States was given.

Very great interest was shown by the pupils in the work of the Weather Bureau, and I have been urged by the principals of the different schools to visit the schools and give them a talk on meteorology and the Weather Bureau. It is expected that this will be done during the coming winter, in which case, the Central Office will be informed in a special report, as directed.

G. N. Wilson, Observer, Lynchburg, Va.:

No work of this character has been done at this station. During my service at the Baltimore station I assisted Dr. C. P. Cronk for a short time with a class at the Johns Hopkins. This instruction consisted principally of explanations of the weather map and the use of the different Weather Bureau instruments.

George B. Wurtz, Observer, Escanaba, Mich.:

Last winter I delivered one lecture before the high school on The use of the weather map. The preceding winter I delivered seven lectures of an hour each before the same school. A simple exposition of the main features of meteorology was given in this course, closing with illustrations of the practical use of the reports in this vicinity.

Of course there are some stations at which the demands upon the Bureau are so severe that the Chief has been obliged to dissuade the employees from attempting any outside work. At some of our largest stations, located in the midst of active commercial interests, the schools and universities in the residential portions of the cities are so far away that lectures or instruction are impracticable. These stations, representing many of our best men, as well as those other stations located in regions of sparse population, where there is no opportunity to give instruction to classes are all included in the following list of stations at which no lectures or other instruction in meteorology are reported to have been given, viz: Abilene, Tex.; Alpena, Mich.; Augusta, Ga.; Baker City, Oreg.; Basseterre, St. Kitts, W. I.; Birmingham, Ala.; Bismarck, N. Dak.; Block Island, R. I.; Boston, Mass.; Cape Henry, Va.; Cape May, N. J.; Carson City, Nev.; Chicago, Ill.; Cienfuegos, Cuba; Concordia, Kans.; Davenport, Iowa; Denver, Colo.; Dodge, Kans.; Eastport, Me.; Elkins, W. Va.; El Paso, Tex.; Eureka, Cal.; Fort Smith, Ark.; Green Bay, Wis.; Harrisburg, Pa.; Havana, Cuba; Jupiter, Fla.; Keokuk, Iowa; Key West, Fla.; Kittyhawk, N. C.; Little Rock, Ark.; Louisville, Ky.; Macon, Ga.; Marquette, Mich.; Memphis, Tenn.; Milwaukee, Wis.; Mobile, Ala.; Nantucket, Mass.; Narragansett Pier, R. I.; Nashville, Tenn.; Neah Wash.; New Brunswick, N. J.; New Orleans, La.; New York, N. Y.; Norfolk, Va.; North Platte, Nebr.; Oklahoma, Okla.; Oswego, N. Y.; Palestine, Tex.; Pensacola, Fla.; Phenix, Ariz.; Philadelphia, Pa.; Pierre, S. Dak.; Pocatello, Idaho; Port Crescent, Wash.; Port Huron, Mich.; Portland,

Me.; Puerto Principe, Cuba; Raleigh, N.C.; Richmond, Va.; Roseburg, Oreg.; Sacramento, Cal.; St. Paul, Minn.; Santa Fe, N. Mex.; Santiago de Cuba, W.I.; Savannah, Ga.; Scranton, Pa.; Shreveport, La.; Springfield, Ill.; Tacoma, Wash.; Toledo, Ohio; Valentine, Nebr.; Walla Walla, Wash.; Williston, N. Dak.; Wilmington, N.C.; Winnemucca, Nev.; Port of Spain, Trinidad; San Juan, P.R.; Currituck Inlet, N.C., Roseau, Dominica, W.I.; Mount Tamalpais, Cal.; Astoria, Oreg.; Tacoma, Wash.; Yuma, Ariz.; Wichita, Kans.; Salt Lake City, Utah; Flagstaff, Ariz.; Amarillo, Tex.; Independence, Cal., Point Reyes Light, Cal.; Miles City, Mont.; Twin, Wash.; Bridgetown, Barbados; Lewiston, Idaho; East Clallam, Wash.; Kingston, Jamaica.

The following stations report simply that explanations and instruction have been given to schools or visitors at the office of the observer:

R. L. Anderson, Observer, Hanover, Mo.; F. H. Clarke, Observer, Binghamton, N.Y.; Lee A. Denson, Observer, Meridian, Miss.; H. P. Dick, Observer, Kalispell, Mont.; George E. Franklin, Local Forecast Official, Los Angeles, Cal.; E. J. Glass, Section Director, Helena, Mont.; H. W. Grasse, Observer, Moorhead, Minn; J. B. Marbury, Local Forecast Official, Atlanta, Ga.; E. H. Nimmo, Observer, Evansville, Ind.; U. G. Pursell, Observer, Sioux City, Iowa; Frank Ridgway, Local Forecast Official, Pittsburg, Pa.; G. N. Salisbury, Section Director, Seattle, Wash.; L. G. Schultz, Observer, Fort Worth, Tex.; L. M. Tarr, Observer, New Haven, Conn.; T. F. Townsend, Section Director, Philadelphia, Pa.; Lucius A. Welsh, Local Forecast Official, Omaha, Neb.; Alexander G. Burns, Observer, Sault Ste. Marie, Mich.; George W. Felger, Observer, Grand Haven, Mich.

Among those who report themselves as preparing to do more in the immediate future at schools, colleges, or universities, are the following:

R. G. Allen, Section Director, Ithaca, N.Y., where Prof. R. S. Tarr, of Cornell, gives his well known course in elementary meteorology two hours each week, and which students in forestry are required to attend; Edward A. Beals, Forecast Official and Section Director, Portland, Oreg., who will lecture on kite work at the University of Oregon; Allen Buell, Observer, San Antonio, Tex.; Thomas Crawford, Observer, Rapid City, S. Dak.; R. H. Dean, Observer, La Crosse, Wis.; George E. Franklin, Local Forecast Official, Los Angeles, Cal.; R. Q. Grant, Observer, Lexington, Ky.; G. A. Loveland, Section Director, Lincoln, Nebr.; A. J. Mitchell, Section Director, Jacksonville, Fla.; Orris W. Roberts, Observer, Yankton, S. Dak.; G. N. Salisbury, Section Director, Seattle, Wash.; P. H. Smyth, Observer, Cairo, Ill.; T. F. Townsend, Section Director, Philadelphia, Pa.; L. A. Welsh, Local Forecast Official, Omaha, Nebr.; A. G. McAdie, Forecast Official, San Francisco, Cal., who will lecture in the University of California; G. Reeder, Observer, Corpus Christi, Tex., who will lecture in the high school at that place.

Finally, the reports from fifteen stations are especially worthy of consideration. It appears that Messrs. A. F. Sims, Albany, N.Y.; O. L. Fassig, Baltimore, Md.; J. Warren Smith, Columbus, Ohio; T. B. Jennings, Topeka, Kans.; I. M. Cline, Galveston Tex.; D. Cuthbertson, Buffalo, N.Y.; W. M. Fulton, Knoxville, Tenn.; R. Q. Grant, Lexington, Ky.; G. A. Loveland, Lincoln, Nebr.; A. G. McAdie, San Francisco, Cal.; George Reeder, Corpus Christi, Tex.; H. W. Richardson, Duluth, Minn., and Columbus, Ohio; W. A. Shaw, Northfield, Vt.; C. F. R. Wappenhans, Indianapolis, Ind., and possibly others, have delivered, or prepared to deliver, extended courses of instruction in meteorology, embracing from ten to forty lectures, and from one to five months of time to classes in normal schools, academies, colleges or universities. It is apparent from this that there are among the officials of the Weather Bureau some whose enthusiasm, taste, and talent fit them for success in lecturing and teaching. If any college or university desires a special course of instruction in meteorology its attention would naturally be directed toward the above names, although doubtless many other men in the service will also show themselves qualified for such positions.

It has always been recognized that the utility, and sometimes even the very existence of the Weather Bureau, has depended upon the appreciation of the fact that meteorology is a branch of modern physical science. During the past thirty years there has been a campaign of instruction in this respect, and the work must necessarily go on for generations to come. Probably it would assist many of our observers to prepare lectures if they could have a reprint in one bulletin of the outlines of the courses of lectures already prepared by Messrs. O. L. Fassig, J. Warren Smith, I. M. Cline, W. M. Fulton, G. A. Loveland, A. G. McAdie, G. W. Shaw, T. B. Jennings, and perhaps others who have prepared such courses. The variety of treatment of the subject by these different individuals has undoubtedly been suggested by the peculiarities of climate, agriculture, and education in their respective localities, and their course of lectures will, therefore, offer something of the variety needed by other men in the service in preparing their own lectures. It is to be hoped that each lecturer will print or offer for printing a complete synopsis of his course so that other lecturers may profit by examining them.

MONTHLY STATEMENT OF AVERAGE WEATHER CONDITIONS.

The great desire for so-called long range predictions of climatic conditions, which in India is admirably responded to by the predictions of monsoon rains, can not, as yet, be gratified in a satisfactory manner for the United States, although it seems likely that we shall be able to do this before many years pass by. Meantime, in response to a popular demand, Professor Garriott, as Chief of the Forecast Division, has begun the preparation, for official publication, of a series of monthly statements of conditions observed during past years. The statement for August was published at the end of July, and is reprinted below.

This is not a weather prediction or forecast properly so-called, it simply tells us the averages and extremes that have occurred in past years, and leaves us to infer that probably something of the kind will happen during the present season. The individual months of the same name in successive years differ among themselves so much as to rainfall, temperature, cloudiness, and wind, that the average of a long series does not represent any one month, and in fact, is not that which is most likely to occur. A true prediction for a coming month must be based upon the study of the maps for the preceding six months, and must include the probable variations from the normal. In the absence of such precise predictions one may certainly draw some profit from a knowledge of the facts contained in these general statements.

AUGUST WEATHER.

STATEMENTS BASED ON CONDITIONS DETERMINED BY LONG OBSERVATION.

The following statements are based on average weather conditions for August, as determined by long series of observations. As the weather of any given August does not conform strictly to the average conditions the statements can not be considered as forecasts:

In August the weather on the North Atlantic Ocean is, as a rule, settled. The more severe storms, which occur on an average of about once in two years, are of tropical or subtropical origin, and cross the Grand Banks, traveling in a northeasterly direction. This course carries them north of the transatlantic steamship routes to the west of the

thirtieth meridian. The fogs of the Newfoundland banks are most prevalent in July and August, when they are encountered in that region twenty or more days in the month. The southern limit of icebergs on the banks, which reaches to about the fortieth parallel in June, contracts north of the forty-fifth parallel in August.

In the West Indies August marks the beginning of the hurricane season. The more severe storms of the month are, however, confined almost entirely to the more eastern islands of the West Indies, and any given locality in the Lesser Antilles and Porto Rico is subject to a hurricane visitation in August on an average of once in fifteen to twenty years. In the Gulf of Mexico the more severe storms of August pass west or north of west from the Caribbean Sea, and average about one in two years.

August is the month of maximum typhoon frequency in the Philippine Islands, the China Sea, and on the China and Japan coasts. These storms usually originate east or northeast of the Philippine Islands and move westward over the China Sea, or recurve northward to the China or Japan coasts. They compare in severity with the West Indian hurricanes.

In the United States August is a month of occasional thunderstorms from the Lake region and Ohio Valley, over the Middle Atlantic and New England States, and the rains in these districts, while usually of short duration, are at times excessive and attended by violent wind squalls. General storms of marked severity seldom occur on the Atlantic seaboard and the Great Lakes in August.

In the Southern States, east of the Mississippi River, the rainfall of the month is caused principally by minor disturbances, which advance from the Gulf of Mexico or the West Indies. Between the Mississippi River and the Rocky Mountains the month of August is usually dry and uneventful, with a tendency to strong and warm southwest winds.

Over the greater part of the country west of the Rocky Mountains, August rainfalls are light, and over the middle Plateau region and in California little or no rain falls.

Willis L. Moore,
Chief U. S. Weather Bureau.

METEOROLOGICAL RECORDS IN OHIO.

We have received from Mr. Samuel P. Davidson, of London, Ohio, a copy of a very interesting climatological table pertaining to his station. Mr. Davidson has kept a record of the temperature and rainfall, dates of frost and other meteorological phenomena from 1852 to date. For thirty years of that time his thermometer was located in one and the same place. According to Mr. Davidson's record the present summer, in point of number of days with temperature of 90° and above, has been equaled once, and exceeded once, viz, in 1867 and 1854, when there were 30 and 38 days, respectively, with temperatures of 90° and above.

In response to Mr. Davidson's request for information as to other observers who have maintained a record for many years, we would say there are a number of voluntary meteorological observers in Ohio who have been reporting continuously for forty years and over. There may be other persons, as in the case of Mr. Davidson, who have made meteorological observations for many years.

Some of the oldest observers, in point of length of service, are mentioned below:

Mr. H. D. Gowey, of North Lewisburg, began making meteorological observations in 1852; he is still an active observer.

Mr. Gustavus A. Hyde, of Cleveland, Ohio, has been a voluntary observer about forty-five years. Mr. Hyde published a summary of his observations, privately, in 1896.

Prof. John Haywood, of Westerville, Ohio, has been observing continuously, if our record is correct, since 1858.

Dr. D. B. Cotton, of Portsmouth, Ohio, also began observations in the late fifties. Our record is not conclusive as to the date of Dr. Cotton's first report. He has likewise observed continuously to the present time.

Among others who have observed long and faithfully are Dr. J. B. Owsley, the present voluntary observer at Jacksonboro, Ohio (1868). Mr. Thomas Mikesell, Wauseon, Ohio (1870).

The Commonwealth of Ohio is fortunate in having within its limits an unusually large number of persons who have been observing the weather for many years.—*A. J. H.*

CLIMATOLOGICAL ATLAS OF THE RUSSIAN EMPIRE.

As a memorial volume commemorating the fiftieth anniversary of the foundation of the Central Physical Observatory founded by the Emperor Nicholas I on April 1, 1849, the present director general, M. Rykatcheff, has published a magnificent folio atlas, in which, by means of eighty-nine meteorological charts and fifteen graphical tables, he has presented the prominent features of the climate of the Russian Empire from Warsaw, on the extreme west, to Bering Strait, on the east, and from Teheran, on the south, to the Arctic Ocean on the north. This range of forty degrees in latitude and a hundred and sixty in longitude represents one of the most extensive compact meteorological systems in the world, and although stations are rather scarce in the interior of Siberia, yet the data are sufficient to justify drawing isobars and isotherms over the whole area. The volume contains thirteen monthly and annual charts, showing the pressure and resultant winds; also similar sets of thirteen charts for the temperature, vapor tension, and relative humidity, respectively. The total precipitation, viz, rain and snow, is shown on five charts for the four seasons and the year; the number of days of rainfall or snowfall and the quantity of cloudiness are also shown by similar sets of five charts each. Additional to these main charts are the following: The annual amplitude of the monthly mean temperature of the air, viz, the difference between the monthly means for July and January; the absolute maxima, the absolute minima, and the absolute range or amplitude for the whole period. All temperatures are reduced to sea level by allowing for a diminution of one-half degree, Centigrade, per 100 meters of elevation. Two charts are devoted to showing the seasons, or the months of maximum and minimum precipitation, which items are of peculiar importance to vegetation, and two other charts to the seasons of maximum and minimum number of rainy days, and two others to the seasons of maximum and minimum cloudiness. These six charts are of special interest in connection with vegetation. Finally three charts show the opening and closing of the rivers with ice. One chart, No. 83, shows the number of days during which a layer of snow prevails on the surface of the ground; the region of maximum number of days (190) extends from Archangel east-southeastward to the Ural and beyond. From this region the number of days during which snow lies on the ground diminishes as we proceed southward until we reach 60 days on the northern shores of the Caspian Sea and 20 days on the northwestern shores of the Black Sea. Chart 84 gives the number of days with thunderstorms, the maximum being 20 at many places, but especially in a belt extending from Nijni-Novgorod and Kazan southwestward to the borders of Roumania. The last five charts show the paths of cyclones and the types of weather in Russia, in so far as this latter depends upon the position of areas of high and low pressure. Although the size of the atlas renders it rather cumbersome, yet the paper and press work being of the finest quality render the whole work a magnificent monument, illustrative of the activity of this great meteorological office.

THE INFLUENCE OF THE LAKES ON TEMPERATURE OF THE LAND.

Mr. John West James, voluntary observer at station, Riley, Ill. (post office address Marengo, Ill.), writes as follows:

Can you kindly inform me, why, so far in the interior of the continent as I am, the east wind is so cold in spring and nearly all summer? My station is 46 miles due west from Lake Michigan, and the

lake is only 60 miles wide in that part, and there is higher ground between me and the lake. Quite often a warm south or southwest wind dies down late in the afternoon to a calm, then all at once, a strong east wind springs up, sending the temperature down very rapidly. Sometimes the east wind stays a day or two, but frequently it goes back by the southeast to south again, and it is warm again by early next morning, sometimes before 10 a. m.

Mr. James's station, Riley, Ill., is about 46 miles west of the nearest point of Lake Michigan, in latitude N. 42° 20′, and it is not at all likely that the diurnal lake breeze, properly so called, extends so far west. On the other hand, the distribution of pressure during August, 1900, has frequently been such as to produce gentle northeast winds on the southwest shore of Lake Michigan, which could easily bring to Riley decidedly cooler air than the southerly winds that ordinarily prevail at this season. The daily morning maps for August, 1900, show six cases in which northeast winds prevailed at 8 a. m.; nineteen cases in which southerly winds prevailed, and six cases in which the region of Riley lay between the regions of northerly winds and southerly winds. These latter are simply six cases in which the change from northerly to southerly, or the reverse, happened to occur at about the time of the morning observations. The other six cases of northeast winds at 8 a. m., must have been accompanied by six corresponding changes from southwest to northeast at some other hour of the day. We infer, therefore, that there were at least twelve cases during the month at Riley, when the wind changed from southwest to northeast, and that all these were general phenomena progressing slowly with the large areas of high and low pressure over the region of Lake Michigan and occurring eventually as often on the east side of the lake as on the west. The coldness of the northeast winds was, therefore, due to the general advance southward of a cool layer of air. It is likely that the air flowing due southward over half the length of the lake, has its temperature sensibly affected by that of the lake water, and would seem cooler at stations on the lake shore, but this influence would be scarcely appreciable at stations 50 miles distant.

Temperature and wind at 8 a. m., 75th meridian time.

Date.	Chicago, Ill.		Milwaukee, Wis.		Grand Haven, Mich.		Davenport, Iowa.		Dubuque, Iowa.		Riley, Ill.	
	Temperature.	Wind.	Temperature.	Wind.	Temperature.	Wind.	Temperature.	Wind.	Temperature.	Wind.	Temperature.*	Wind.†
	°		°		°		°		°		°	
August 1....	71	e.	66	ne.	62	e.	70	ne.	67	e.	83	s.
2....	70	sw.	68	e.	66	se.	72	se.	72	sw.	81	nw.
3....	74	sw.	62	n.	67	e.	70	e.	68	se.	93	sw.
4....	76	sw.	71	sw.	72	se.	76	s.	77	sw.	94	sw.
5....	78	w.	77	w.	75	sw.	77	s.	77	sw.	97	sw.
6....	79	sw.	77	sw.	77	sw.	78	s.	76	se.	96	sw.
7....	78	sw.	78	sw.	76	sw.	77	sw.	77	sw.	95	sw.
8....	76	sw.	79	w.	76	sw.	76	s.	77	s.	95	sw.
9....	76	sw.	78	w.	77	s.	77	sw.	77	s.	95	w.
10....	78	sw.	77	sw.	76	sw.	76	sw.	75	sw.	95	sw.
11....	76	sw.	76	w.	77	sw.	76	sw.	74	s.	93	sw.
12....	68	s.	70	sw.	68	e	69	w	70	sw.	82	nw.
13....	69	se.	64	sw.	63	calm	72	w.	68	sw.	85	nw.
14....	73	sw.	72	w.	75	sw.	65	ne.	66	ne.	82	sw.
15....	71	nw.	68	s.	64	se.	70	ne.	69	s.	78	ne.
16....	68	n.	66	w.	65	nw	69	se.	69	s.	76	se.
17....	71	s.	67	w.	67	se.	68	n.	68	e	75	e.
18....	74	se.	72	se.	71	se.	77	s.	73	se.	92	sw.
19....	79	sw.	78	w.	80	s.	78	s	79	s.	90	sw.
20....	77	sw	77	w.	76	sw.	78	sw.	80	s.	92	sw.
21....	70	ne.	68	n.	70	calm.	78	sw.	72	nw.	81	ne.
22....	73	se.	72	se.	64	e	68	e.	67	e.	84	e.
23....	72	n.	66	sw.	68	se.	73	w.	72	se.	87	sw.
24....	74	s.	70	se	68	se.	71	w.	68	s.	84	sw.
25....	70	sw.	70	sw.	71	se.	69	sw.	68	sw.	84	sw.
26....	68	e.	70	se.	70	ne.	71	s.	70	s.	74	nw.
27....	69	nw	66	w.	68	n.	67	s.	64	se.	83	w.
28....	73	nw.	71	w.	70	calm	70	n.	68	nw.	85	nw
29....	72	ne.	72	ne.	61	ne.	70	e	62	nw.	84	nw.
30....	74	se.	68	sw.	65	se.	68	e.	67	se.	86	se.
31....	72	se.	68	ne.	65	e.	69	e.	68	e.	88	se.

* Maximum temperatures; No observations at 8 a. m.
† Prevailing direction for the day.

The preceding is the 8 a. m. record for Milwaukee, Chicago, Grand Haven, Davenport, and Dubuque during August, 1900. Riley is situated in the midst of this quadrangle and its record of maximum temperatures is also given. As the changes at Riley from warm southerly to cool easterly winds are not regular diurnal, it is probable that they depend upon the presence of the high and low areas; but the fact that the change takes place late in the afternoon seems to show that the heating of the surface air assists the southward flow of the cold air from a high area and causes the southern limit, to which the northerly winds extend, to lie further south than it otherwise would; probably it lies further south in the afternoon and retreats at night-time, so that the boundary between the northerly and southerly winds has a diurnal oscillation in latitude, and this may be much more decided in the spring and early summer than at any other season of the year. In central Michigan the Editor has often observed the flow south and west of very low clouds while the air at the earth's surface was quite calm in the early mornings of May and June. The cloud is formed like a long roll between an upper and lower current of air; the lower current nearly calm or from the south, the upper current cooler and from the northeast.

In the spring time the masses of cold air that invade the United States from Canada during the winter time have begun to diminish in extent and intensity; by the time they have passed over the Lake region the northerly winds have become appreciably warmer and moister, although still raw and cold, as compared with the summer time. When a station lies near the front of the advancing cold wave, but still within the area of warm southerly winds, the latter will prevail over it for a portion of the day, but the former for another portion, while variable winds and calms occur between times. During the late hours of the night, while a calm prevails at the earth's surface, with low temperatures, due to nocturnal radiation, one may see light clouds overhead, moving rapidly from either north or south, according to the observer's position relative to the mass of cold air coming from the north. After the sun warms up the ground and its calm air rises, the upper winds descend, and we have northerly or southerly winds in the respective cases. The temperature of the wind that comes down in such cases depends very little upon the presence of a lake or other feature of the earth's surface in the neighborhood, since this layer of air has come rapidly from a great distance. If it is northerly wind, it brings with it the low temperatures of the arctic zone; if a southerly wind, it brings the temperatures of the tropics. These temperatures have, of course, been somewhat modified by the radiation of their own heat and by the absorption of heat from other sources, as also by mixture with the intervening air; but the effect of Lake Michigan upon these great masses of upper air is very slight. The northeast wind is cold in the spring time not merely at Riley, Ill., but throughout the whole north temperate zone. Its cold is aggravated in certain regions, such as the coast of New England, by the fact that it brings cold, moist air from the cold ocean current that bathes the shores. The same is true of the immediate western coast of Lake Michigan, because of the fog and cloud formed from the moisture that rises from the lake; but we doubt whether this influence can be appreciable at Riley, 46 miles to the west.

In the early summer of 1900 a number of paragraphs appeared in the Chicago papers commenting upon the unusual coolness of the season and attributing the change of climate to the local influence of the gentle surface current setting southward over Lake Michigan and through the new Chicago canal. It was scarcely necessary to contradict this newspaper extravaganza, but the idea that this current could affect the general temperature of the northeast winds is to be answered

very much as we would reply to the above correspondent, viz: that the north and east winds are cold in and of themselves, quite independent of the temperature of Lake Michigan, and if they do produce cold weather at Chicago or at Riley station it is not because the Chicago River has drawn cold water to the southern part of the lake nor because the lake has a cooling influence on the air as far west as Riley station.

The direct influence of the lake water upon the temperature of the air is appreciable for a few miles only; the indirect influence, by reason of the formation of cloud and rain, may be felt for 50 miles. This subject was studied very thoroughly by Prof. Alexander Winchell, of Ann Arbor, Mich., in a paper published in the Proceedings of the American Association for the Advancement of Science for 1870, Vol. XIX, pp. 106–117. Two charts accompanied this paper showing the mean monthly temperatures for July and January. It may be assumed that the means were taken by the ordinary rule $1/4\ (7+2+2\times 9)$. These charts show a great irregularity in the isotherms, which irregularities may be ascribed in part to direct atmospheric action, since the Lake region is a cloudy and rainy region toward which all the storm tracks of the American continent converge; it is also the region where warm southerly and cool northerly winds mingle with a special frequency. Owing to the cloud, rain, and storm frequency this is also a region of heavy forests and lakes and swamps, both large and small. The latter are undoubtedly the product of the former. It is not right to say that the Lake region is cool, stormy, and moist because of the lakes, but because of the presence of the storms.

If the lakes have any decided influence on the temperature it must be only a slight differential effect, which would become visible by comparing the temperatures on opposite sides of a lake when the general wind is blowing steadily in one direction. Professor Winchell's isotherms for July show that stations on opposite sides of Lake Michigan, directly east and west of each other and close to the lake shore, have precisely the same temperature from Chicago and New Buffalo, at the south end up to Mackinaw at the north. His isotherms for Lake Ontario show almost the same thing. His isotherms for January, on the other hand, show that the west coast of Lake Michigan is 5° or 10° colder than the east shore, that is to say, the air whose temperature averages between 20° and 30° grows slightly warmer as the west winds of January blow eastward over the frozen lake. In crossing over the Peninsula of Michigan from west to east temperatures generally grow colder by 3° or 4°, due to the fact that the warming influence of the clouds on the east shore of Lake Michigan disappears as we proceed toward the east. Thus, the January isotherm of 23°, passing near Chicago, runs northward to Northport, Mich., thence south to Lansing, then north until it nearly reaches Alpena, and thence eastward over Lake Huron, and southeast into New York.

HYDROGRAPHY OF NICARAGUA.

For several years past we have published in the Monthly Weather Review all the meteorological data that have been offered to us relative to the climate of Central America, especially Panama and Nicaragua. These publications have been appreciated by those who are studying the conditions that must attend any effort to construct inter-oceanic canals across those portions of Central America. Through the activity of the engineers employed by the boards appointed by Congress to investigate the feasibility of a canal between the Atlantic and Pacific Oceans (viz: the "Canal Board of 1895," the Nicaragua Canal Commission of 1897, and the Isthmian Canal Commission of 1899), a large addition has been made during the past five years to our knowledge of the climate of Central America. In the Twentieth Annual Report of the United States Geological Survey is given a review of the rainfall data and the height and flow of rivers and the fluctuations of Lake Nicaragua (as also the evaporation of water, the formation of river sediments, and other matters affecting the canal question) in a short paper on the hydrography of Nicaragua by Arthur P. Davis, of the United States Geological Survey, Engineer to the Nicaragua Canal Commission of 1897. Still more recent data will, undoubtedly, be presented to Congress in the final report of the Isthmian Canal Commission appointed to decide on the relative merits of the various proposed canals.

OFFICIAL ORGANS.

All communications between the Chief of the Weather Bureau and the observers, both regular and voluntary, proceed by formal letters or circulars and are never sent through any official organ, so-called. For fear lest some mistake may be made in the minds of our readers it is proper to say that whatever is printed in the Monthly Weather Review under the name of any contributor, officer, or editor is to be viewed as a personal expression and without any official authority, unless that phrase is expressly used by the Chief himself, or his authorized representative.

Not long since a circular was received announcing the establishment of a new journal to be published in the interest of the voluntary observers of the Weather Bureau. These observers have been voluntarily keeping weather records and communicating copies to the Weather Bureau for the public benefit, and the Weather Bureau, in return, has done for them all that it is officially able to do in the way of supplying public documents and, in exceptional cases, thermometers and other instruments.

The first letter received by the Chief of Bureau relative to the new journal, spoke of it as the organ of a scientific society, and to that letter a most cordial response was given, but no article was "contributed" by the Chief. The subsequent letter and circular, and the first number itself of the journal, shows that it aspires to be the official organ of the voluntary observers of the Weather Bureau, a project to which the Chief of the Weather Bureau can not possibly be expected to lend any encouragement. As a journal of meteorology, climatology, and allied sciences Earth and Air is to be heartily encouraged by the Weather Bureau, just as it encourages Popular Science and all other scientific journals, but there is no need for its existence as an official organ.

THE WEATHER OF THE MONTH.

By Alfred J. Henry, Professor of Meteorology.

The month was characterized by general stagnation in the lower layers of the atmosphere. East of the Rocky Mountains and north of the Gulf States the weather was abnormally warm, the monthly mean temperatures surpassing, in many instances, those registered in tropical countries. The skies were generally free from clouds, especially at night, and rainfall was deficient over large areas east of the Mississippi. In Nebraska, the Dakotas, Minnesota, northern Wis-

consin, and portions of Iowa an abundance of rain fell. West of the Rocky Mountains temperature was below the seasonal average, and rainfall was also below normal. Drought prevailed in Arizona, portions of New Mexico, Colorado, and Wyoming.

There was a marked absence of violent local storms and destructive tornadoes, and the highs and lows, while following beaten paths, moved very slowly.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV, and the numerical values are given in Tables I and X.

The distinguishing characteristic of this chart is the landward extension of the high which usually covers the Carolinas, eastern Tennessee, and Georgia. The low in the Rocky Mountain and Plateau regions is deeper than usual, and the general configuration of the monthly mean isobars is typical of abnormally hot weather in the Lake region, the Ohio Valley, and the Middle States, as well as the Piedmont Plateau. Pressure was below normal at Bermuda, but about normal at West Indian stations. It would be interesting to know whether pressure was also below normal in the Azores.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

Temperature was continuously high east of the Rocky Mountains and north of the Gulf States, except in New England, the daily departures being as high as 8° above the average in one or two cases; generally, however, the daily departures ranged from 2° to 6° above the average. West of the Rocky Mountains the reverse conditions obtained, temperature being from 2° to 6° below the average, except on the immediate Pacific coast. The extremes of temperature were not unusually high, although in one or two cases the record of thirty years was equaled or exceeded. Further details with regard to the hot spell are given on page 333.

The average temperature for the several geographic districts and the departures from normal values are shown in the following table:

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	10	68.6	+ 2.0	+ 5.7	+ 0.7
Middle Atlantic	12	78 2	+ 5 0	+ 8 5	+ 1.1
South Atlantic	10	82.9	+ 4.4	+ 0.8	+ 0.1
Florida Peninsula	7	82.8	+ 1.7	— 5.3	— 0.7
East Gulf	7	81.9	+ 2.2	— 6.4	— 0.8
West Gulf	7	81.7	+ 1.2	+ 1.7	+ 0.2
Ohio Valley and Tennessee	12	80.2	+ 5.4	+ 2.9	+ 0.4
Lower Lake	8	74.4	+ 5.0	+ 3.1	+ 0.4
Upper Lake	9	71.8	+ 6.1	+11.3	+ 1.4
North Dakota	8	71.1	+ 4.6	+36 4	+ 4.6
Upper Mississippi Valley	11	79.8	+ 7.0	+12.1	+ 1.5
Missouri Valley	10	78.4	+ 5.5	+21.9	+ 2.7
Northern Slope	7	69.1	+ 1.2	+30.8	+ 3.8
Middle Slope	6	78 2	+ 3.6	+16.3	+ 2.0
Southern Slope	6	78.4	+ 1.0	+ 4.2	+ 0.5
Southern Plateau	15	74.3	— 2.7	+ 7.8	+ 1.0
Middle Plateau	9	67.2	— 3.1	+17.8	+ 2.2
Northern Plateau	10	63 2	— 4.9	+23.4	+ 2.9
North Pacific	9	60.4	— 1.7	+12.5	+ 1.6
Middle Pacific	5	63.9	— 0.9	+ 7.8	+ 1.0
South Pacific	4	68.7	— 2.8	+ 9.0	+ 1.1

In Canada.—Acting Director B. C. Webber says:

Temperature conditions for the month were in many ways very remarkable. The average was exceeded from the Qu'Appelle to the lower St. Lawrence valleys, also in the southwestern portion of the Maritime Provinces, but elsewhere in Canada it was not maintained. Two large areas of excessive and deficient temperature conditions of almost equal opposite values prevailed in the Dominion. The deficient area, with temperatures from 6° to 8° below average, embraced practically the whole mainland of British Columbia, whilst the excessive area, with temperatures from 6° to 8° above average, covered the country from the western portion of Lake Superior to central and southern Ontario. Toronto was 6° above average. The warmest August since records have been kept, which is from 1840, and from the conditions generally prevailing, it is fair to assume that in Ontario, as a whole, August, 1900, was the warmest August for sixty years. The greater portion of the Northwest Territories was from 0° to 3° below average, and eastern Quebec and the eastern portion of the Maritime Provinces was from average to 1° below.

PRECIPITATION.

Rainfall was below normal in the lower Mississippi Valley, the east Gulf and south Atlantic States, the Ohio Valley, the Middle States, the lower Lake region, and New England. Over this large area local rains and thunderstorms occurred on three different periods, but the amount of rain that fell on each occasion was generally small. Within this large area of general deficiency very few stations received as much as the normal rainfall; on the other hand the rainfall in several districts was almost *nil*. Pastures were burned up, and there was a scarcity of water for stock and domestic purposes.

In the Northwest frequent heavy thundershowers brought an abundance of rain, especially in southeastern Nebraska, the Dakotas, Minnesota, and northern Wisconsin.

In the Southwest, including Colorado and Wyoming, rainfall was markedly deficient. The fall on the north Pacific coast was slightly above normal. There was practically no rain over the greater portion of California and Nevada.

In Canada.—Acting Director B. C. Webber says:

The rainfall was largely above the average over the greater portion of British Columbia and the Northwest Territories. It was also considerably above in Manitoba, the Lake Superior region, the Nipissing district, and north of the Ottawa River. It was also a little above south and west of Lake Simcoe, to the United States boundary, but elsewhere in Canada it was below average. The Georgian Bay and Muskoka regions suffered much from drought; at Parry Sound the rainfall was nearly 2 inches below the usual amount, whereas 100 miles further north it was above the average. In Quebec and the Maritime Provinces the deficiency was very generally from 1 to 2 inches. Southern Alberta was also nearly an inch below the average. Barkerville, B. C., was as much as 6 inches above average; Banff, Edmonton, and Battleford, 3 inches above; Prince Albert and Port Arthur, 4 inches above.

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		Inches.	Inches.
New England	10	2.39	60	—1.6	— 2.0
Middle Atlantic	12	2.68	58	—1.9	— 5.4
South Atlantic	10	2.43	37	—4.2	— 5.5
Florida Peninsula	7	3.67	57	—2.8	+ 3.1
East Gulf	7	2.78	49	—2.9	+ 7.7
West Gulf	7	4.30	119	+0.7	+ 4.0
Ohio Valley and Tennessee	12	2.85	80	—0.7	— 6.6
Lower Lake	8	2.64	90	—0.3	— 0.4
Upper Lake	9	3.91	130	+0.9	— 2.2
North Dakota	8	5.85	221	+3.2	— 0.9
Upper Mississippi Valley	11	3.72	124	+0.7	— 1.9
Missouri Valley	10	4.08	128	+0.9	+ 0.2
Northern Slope	7	1.54	115	+0.2	— 1.6
Middle Slope	6	1.45	55	—1.2	— 1.3
Southern Slope	6	1.76	69	—0.8	+ 2.5
Southern Plateau	15	0.58	37	—1.0	— 1.8
Middle Plateau	9	0.25	38	—0.4	— 3.3
Northern Plateau	10	0.81	67	—0.4	— 2.3
North Pacific	9	1.17	134	+0.3	— 0.3
Middle Pacific	5	0.02	100	0.0	— 4.3
South Pacific	4	T.	100	0.0	— 4.2

HAIL

The following are the dates on which hail fell in the respective States:

Alabama, 2, 15, 27. Arizona, 4, 17, 18, 30. Arkansas, 25. California, 1. Colorado, 2, 4, 7, 8, 11, 20, 21, 22, 23, 30. Florida, 22, 25. Georgia, 24, 25, 30. Idaho, 1, 5, 7, 22. Illinois, 1, 13, 14, 15, 17, 19, 21, 23, 24, 25. Indiana, 24, 25. Indian Territory, 25. Iowa, 12, 14, 15, 16, 17, 23. Kansas, 11, 15, 21, 22, 24, 25, 27, 28. Kentucky, 1, 2, 3, 12, 15, 28. Louisiana, 26, 27. Maryland, 3, 18. Michigan, 14, 17, 19. Missouri, 12, 15, 21, 24, 25, 27. Montana, 4, 6, 7, 8, 9, 11, 14. Nebraska, 11, 12, 13, 14, 15, 16, 21, 23, 24, 26, 27. Nevada, 1, 2, 19, 22. New Jersey, 6, 7, 15, 17, 29. New Mexico, 5, 6, 7, 9, 17, 30. New York, 1, 2, 11, 24, 26, 28. North Carolina, 11, 14, 16, 21, 22, 29. North Dakota, 9, 10, 12, 14, 20, 21, 22, 30. Ohio, 3, 12, 15, 19, 20, 22, 24, 25, 31. Oklahoma, 23, 25. Pennsylvania, 6, 11, 16, 17, 18, 20. South Dakota, 13, 23, 31. Tennessee, 20, 22. Texas, 26. Utah, 5, 18. Virginia, 7, 22. Washington, 10, 21, 25, 26. West Virginia, 16, 18, 19. Wisconsin, 2. Wyoming, 5, 9, 10, 21.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Hatteras, N. C	20	75	nw.	Mount Tamalpais, Cal.	27	51	nw.
Indianapolis, Ind	12	52	nw.	Do	29	58	nw.
Lincoln, Nebr	15	54	nw.	New York, N. Y	12	76	nw.
Do	21	78	w.	Norfolk, Va	16	52	nw.
Do	23	54	nw.	Do	24	50	sw.
Memphis, Tenn	26	59	nw.	Pierre, S. Dak	11	50	n.
Mount Tamalpais, Cal	1	52	n.	Do	12	60	n.
Do	10	55	w.	Do	21	53	ne.
Do	18	50	w.	Point Reyes Light, Cal.	6	60	nw.
Do	19	51	w.				

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table VII, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 15th, 350; 23d, 321; 27th, 275.

Reports were most numerous from: Missouri, 335; Ohio, 320; Iowa, 276.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 6th to 14th.

In Canada.—Thunderstorms were reported as follows: Halifax, 4th, 27th; Charlottetown, 1st, 28th; Father Point, 24th; Quebec, 2d, 15th, 16th, 22d, 24th, 26th; Bissett, 14th, 25th, 30th; Ottawa, 2d, 5th, 6th, 14th; Kingston, 15th, 18th; Toronto, 7th, 9th, 11th, 13th, 18th; White River, 5th, 9th, 14th, 16th, 19th, 25th 30th; Port Stanley, 6th, 8th, 12th, 20th, 27th; Saugeen, 11th, 20th, 25th, 27th; Parry Sound, 5th, 14th; Port Arthur, 5th, 13th, 18th, 19th, 21st; Minnedosa, 8th, 9th, 12th, 13th, 17th, 18th, 22d, 25th, 26th, 29th, 30th; Qu'Appelle, 2d, 6th, 7th, 9th, 10th, 11th, 12th, 16th, 17th, 18th, 20th, 21st; Medicine Hat, 30th; Swift Current, 1st, 6th, 8th, 9th, 10th, 12th, 16th, 17th, 22d, 26th, 30th; Banff, 4th; Prince Albert, 18th; Victoria, 1st; Hamilton, Bermuda, 3d, 5th, 9th, 17th, 20th, 22d, 23d, 29th; Barkerville, 24th.

Auroras were reported as follows: Prince Albert, 23d.

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

The averages for the various districts, with departures from the normal, are shown in the table below:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	4.7	−0.3	Missouri Valley	3.9	−0.2
Middle Atlantic	3.9	−1.1	Northern Slope	4.4	+0.7
South Atlantic	3.2	−2.0	Middle Slope	3.6	−0.2
Florida Peninsula	5.3	+0.1	Southern Slope	3.2	−1.6
East Gulf	4.4	−0.5	Southern Plateau	2.2	−1.2
West Gulf	4.6	+0.2	Middle Plateau	2.8	+0.6
Ohio Valley and Tennessee	3.7	−0.8	Northern Plateau	4.5	+1.5
Lower Lake	4.4	−0.1	North Pacific Coast	5.3	+1.4
Upper Lake	5.5	+0.7	Middle Pacific Coast	3.3	+0.5
North Dakota	3.9	0.0	South Pacific Coast	3.2	+0.7
Upper Mississippi	3.8	−0.3			

HUMIDITY.

The averages by districts appear in the subjoined table:

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	80	− 2	Missouri Valley	68	+ 1
Middle Atlantic	72	− 3	Northern Slope	55	+ 4
South Atlantic	76	− 6	Middle Slope	56	− 5
Florida Peninsula	79	− 2	Southern Slope	64	0
East Gulf	77	− 3	Southern Plateau	31	−17
West Gulf	79	+ 5	Middle Plateau	27	− 5
Ohio Valley and Tennessee	71	0	Northern Plateau	46	+ 3
Lower Lake	74	+ 4	North Pacific Coast	75	− 3
Upper Lake	80	+ 6	Middle Pacific Coast	63	− 5
North Dakota	71	+ 8	South Pacific Coast	67	+ 4
Upper Mississippi	73	+ 8			

DESCRIPTION OF TABLES AND CHARTS.

By Alfred J. Henry, Professor of Meteorology.

For description of tables and charts see page 214 of Review for May, 1900.

TABLE I.—*Climatological data for Weather Bureau Stations, August, 1900.*

Stations	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.												Precipitation, in inches.			Wind.									
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Mean actual, 8 a. m. + 8 p. m. ÷ 2.	Mean reduced.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity: Miles per hour.	Maximum velocity: Direction.	Maximum velocity: Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.
New England.							68.6	+ 2.0										80	2.39	— 1.6										4.7	
Eastport	76	69	74	29.92	30.00	+ .03	64.1	+ 1.5	89	27	70	50	21	54	34	57	55	85	2.58	— 0.9	12	5,637	n.	30	e.	14	8	15	8	5.8	
Portland, Me	103	81	89	29.88	29.98	.00	67.8	+ 1.0	94	11	76	52	14	60	23	61	58	74	3.72	0.0	8	4,438	nw.	21	s.	2	14	11	6	4.5	
Northfield	876	15	65	29.11	30.03	+ .05	64.6	+ 1.7	91	26	76	38	4	53	41	60	58	85	4.11	— 0.5	12	4,979	s.	36	w.	6	4	18	9	6.0	
Boston	125	115	181	29.88	30.01	+ .03	71.1	+ 2.0	97	26	79	52	4	63	28	65	62	76	2.46	— 2.0	10	6,073	sw.	39	w.	10	14	8	9	4.8	
Nantucket	12	43	54	30.01	30.02	+ .01	69.2	+ 1.5	87	11	75	59	15	64	17	65	63	88	1.56	— 1.6	8	6,216	sw.	26	ne.	2	9	15	7	5.0	
Block Island	26	11	70	29.99	30.02	+ .02	70.6	+ 2.6	89	9	77	54	21	64	21	66	64	84	2.85	— 0.6	9	8,507	sw.	39	ne.	3	17	11	3	3.5	
Narragansett	......	10	....	......	......	......	70.6	+ 2.2	90	11	78	48	4	63	24	....	....	....	0.96	— 2.9	5	......	s.	....	....	....	24	4	3	....	
New Haven	106	117	140	29.91	30.02	+ .01	73.2	+ 3.2	98	11	83	53	4	64	27	66	63	74	0.90	— 4.2	10	5,295	sw.	24	w.	11	20	8	3	3.0	
Mid. Atlan. States.							73.2	+ 5.0										72	2.68	— 1.9										3.9	
Albany	97	84	113	29.92	30.02	+ .04	74.7	+ 4.2	98	6	85	51	4	64	34	65	61	68	2.83	— 1.2	12	4,560	s.	26	se.	13	14	13	4	4.1	
Binghamton	875	79	90	......	......	......	72.2	+ 5.0	96	10	84	45	4	61	40	....	....	....	0.67	— 3.3	11	3,539	nw.	26	n.	8	6	15	10	5.7	
New York	314	108	346	29.69	30.02	+ .01	76.8	+ 4.5	95	11	84	60	4	70	28	68	64	71	2.69	— 2.0	9	7,000	nw.	76	nw.	12	15	12	4	4.4	
Harrisburg	374	94	104	......	......	......	78.2	+ 6.1	98	6	88	57	2	68	29	....	....	....	4.72	+ 0.2	9	3,456	nw.	33	w.	24	14	12	5	3.9	
Philadelphia	117	168	184	29.92	30.04	+ .02	79.2	+ 5.4	101	11	88	61	4	70	29	69	65	69	3.95	— 0.4	13	5,491	n.	31	nw.	12	15	11	5	4.3	
Atlantic City	52	68	76	29.98	30.08	+ .04	76.2	+ 4.4	98	11	83	58	5	70	24	71	68	79	0.70	— 4.1	8	6,134	sw.	26	ne.	12	16	12	3	3.7	
Cape May	17	47	51	30.02	30.04	+ .04	76.7	+ 3.5	96	12	83	60	4	71	21	71	....	....	2.73	— 2.8	14	4,396	s.	40	n.	6	17	10	4	3.7	
Baltimore	123	68	82	29.90	30.03	+ .02	80.4	+ 5.5	100	10	89	61	2	71	30	71	68	70	2.91	— 1.1	10	3,204	w.	26	w.	12	13	13	5	4.0	
Washington	112	50	76	29.92	30.03	+ .01	79.6	+ 5.0	101	11	90	59	2	70	30	71	68	73	2.28	— 1.7	11	3,643	nw.	28	se.	24	22	4	5	3.2	
Cape Henry	......	5	34	......	......	......	81.2	+ 4.8	100	16	89	65	6	73	26	....	....	....	2.99	— 2.5	8	6,723	sw.	36	ne.	21	14	15	2	4.0	
Lynchburg	681	83	88	29.33	30.04	+ .03	81.2	+ 5.9	100	11	92	62	5	70	32	71	67	67	2.29	— 1.7	6	2,190	nw.	44	n.	16	19	10	2	3.5	
Norfolk	91	102	111	29.94	30.03	+ .03	81.9	+ 5.3	100	11	90	66	6	73	27	74	71	77	3.37	— 2.7	9	5,109	s.	52	nw.	16	20	8	3	3.3	
Richmond	144	82	90	......	......	......	82.9	......	102	11	94	65	6	72	28	....	....	....	3.66	......	10	2,930	n.	24	sw.	13	17	13	1	3.4	
S. Atlantic States.							82.9	+ 4.4										76	2.43	— 4.2										3.2	
Charlotte	773	68	76	29.26	30.05	+ .06	81.9	+ 5.8	99	10	93	67	7	71	29	70	66	65	3.05	— 2.3	6	3,707	sw.	34	sw.	16	20	8	3	3.4	
Hatteras	11	17	36	30.03	30.04	+ .05	80.6	+ 3.2	90	9	85	68	6	76	17	75	73	82	1.56	— 4.8	8	8,193	sw.	75	nw.	20	18	12	1	3.2	
Kittyhawk	8	12	30	......	......	......	80.8	+ 3.2	98	11	87	66	*	74	20	....	....	....	3.79	— 3.0	8	7,930	sw.	....	....	....	23	7	1	2.4	
Raleigh	376	93	101	29.67	30.05	+ .06	82.2	+ 6.5	99	15	93	65	5	71	29	73	69	71	4.51	— 1.7	6	3,425	sw.	38	nw.	20	25	5	1	2.4	
Wilmington	78	82	90	29.98	30.06	+ .07	82.4	+ 4.2	97	9	92	64	3	73	25	74	73	80	1.90	— 5.6	6	4,992	sw.	38	s.	3	18	11	2	3.3	
Charleston	48	14	92	30.04	30.09	+ .10	84.2	+ 3.7	99	21	91	72	31	78	21	76	73	77	0.40	— 7.2	4	6,731	sw.	42	ne.	17	12	19	0	4.0	
Columbia	......	5	....	......	......	......	85.1	+ 6.5	106	20	98	67	6	73	30	....	....	....	0.61	— 6.2	7	......	sw.	....	....	....	17	13	1	3.5	
Augusta	180	89	103	29.87	30.06	+ .09	84.0	+ 4.6	102	20	95	69	25	73	26	73	69	69	4.42	— 0.8	8	3,634	nw.	28	sw.	24	22	6	3	2.8	
Savannah	65	79	89	30.01	30.07	+ .07	83.9	+ 3.6	102	20	94	69	7	74	27	76	75	88	2.01	— 5.7	8	4,634	sw.	35	s.	14	21	10	0	2.7	
Jacksonville	43	69	84	30.03	30.08	+ .10	84.2	+ 3.1	101	21	93	70	8	75	27	75	73	78	2.07	— 4.4	6	4,622	sw.	40	sw.	22	12	15	4	4.2	
Florida Peninsula.							82.6	+ 0.5										79	3.68	— 2.8										5.3	
Jupiter	28	13	30	30.03	30.06	+ .06	83.2	+ 2.2	93	22	89	74	18	77	17	77	74	78	1.12	— 4.0	6	5,741	e.	20	ne.	17	12	18	1	4.1	
Key West	22	43	50	30.03	30.05	+ .09	82.7	— 1.2	89	24	87	72	28	78	16	76	74	77	3.02	— 1.8	18	6,151	e.	30	ne.	16	9	18	4	5.2	
Tampa	34	60	67	30.03	30.07	+ .10	82.0	+ 0.6	93	29	91	68	5	73	23	74	72	82	6.90	— 2.6	15	3,677	ne.	34	se.	26	1	25	5	6.6	
East Gulf States.							81.9	+ 2.2										77	2.78	— 2.9										4.4	
Atlanta	1,174	139	156	28.89	30.08	+ .09	81.2	+ 4.7	98	11	91	68	31	71	24	71	68	72	1.79	— 3.0	6	5,366	nw.	30	nw.	14	17	9	5	4.1	
Macon	370	93	99	......	......	......	82.4	......	100	9	94	67	7	71	29	....	....	....	5.93	......	9	3,302	sw.	48	s.	12	3	28	0	4.3	
Pensacola	56	78	90	......	......	......	82.4	+ 2.0	97	20	89	72	15	76	20	....	....	....	2.54	— 5.8	8	5,892	ne.	40	se.	15	14	14	3	4.1	
Mobile	57	88	96	30.02	30.08	+ .11	81.4	+ 1.1	96	21	89	69	22	74	23	75	73	81	4.70	— 2.2	13	4,259	n.	36	nw.	22	13	12	6	4.4	
Montgomery	223	100	112	29.84	30.07	+ .09	83.0	+ 3.2	99	10	93	69	7	73	27	73	70	75	2.31	— 1.8	8	3,517	sw.	30	sw.	29	12	17	2	4.1	
Meridian	375	84	93	......	......	......	80.3	+ 2.5	95	10	91	65	8	70	28	....	....	....	2.26	— 1.6	5	2,901	sw.	19	s.	5	15	13	3	4.0	
Vicksburg	247	65	73	29.78	30.04	+ .05	81.2	+ 1.1	93	21	90	69	2	72	23	74	72	79	0.12	— 3.4	3	3,766	sw.	30	se.	6	14	13	4	4.1	
New Orleans	51	112	120	30.00	30.06	+ .10	82.4	+ 0.9	94	21	89	68	6	76	19	75	73	79	4.19	— 1.9	10	4,748	se.	31	se.	6	13	9	9	4.7	
Port Eads	......	27	....	......	......	......	83.4	+ 1.8	92	*	89	73	*	78	15	....	....	....	4.33	— 3.3	10	......	se.	....	....	....	3*	20*	7*	6.1	
West Gulf States.							81.7	+ 1.2										79	4.30	+ 0.7										4.6	
Shreveport	249	77	84	29.77	30.03	+ .06	81.8	+ 0.5	96	21	91	67	28	72	24	74	71	80	3.02	+ 0.8	9	4,464	s.	30	s.	26	5	19	7	5.4	
Fort Smith	457	74	82	29.52	29.99	+ .05	82.4	+ 4.7	100	21	93	66	2	72	27	73	70	72	3.01	— 0.7	5	5,897	e.	30	e.	26	17	5	9	4.5	
Little Rock	357	98	100	29.66	30.03	+ .06	81.0	+ 2.8	96	21	91	64	26	71	23	73	71	78	4.31	+ 0.2	11	4,600	s.	38	n.	27	15	15	1	3.6	
Corpus Christi	18	42	50	29.96	29.98	+ .02	81.8	+ 0.4	89	24	86	72	11	77	14	77	76	84	5.48	+ 2.4	10	8,813	se.	30	e.	11	13	10	8	4.6	
Fort Worth	670	106	114	......	......	......	81.2	......	97	27	90	65	30	72	26	....	....	....	1.43	......	6	8,541	s.	38	s.	24	9	21	1	4.2	
Galveston	54	84	88	29.95	30.00	+ .05	82.8	— 0.4	90	5	87	72	3	79	14	77	75	80	6.94	+ 1.4	15	5,610	s.	32	sw.	11	13	12	6	4.7	
Palestine	510	54	61	29.47	30.01	+ .04	80.2	— 0.2	93	26	89	67	29	72	24	73	71	82	3.29	+ 0.6	11	4,994	s.	22	sw.	24	9	11	11	5.3	
San Antonio	701	95	104	29.26	29.98	+ .04	82.8	+ 0.6	96	26	92	69	30	73	24	74	72	80	4.05	+ 0.2	12	5,250	se.	26	ne.	8	12	13	6	4.8	
Ohio Val. & Tenn.							80.2	+ 5.4										71	2.85	— 0.7										3.7	
Chattanooga	762	106	112	29.30	30.08	+ .08	81.0	+ 5.1	98	8	91	67	4	71	28	71	68	71	2.16	— 1.6	10	4,194	sw.	38	w.	13	15	16	0	3.5	
Knoxville	1,004	10	88	29.06	30.08	+ .06	80.2	+ 5.4	98	11	92	65	4	69	30	71	68	76	3.64	— 0.4	9	3,684	ne.	42	sw.	12	20	9	2	3.0	
Memphis	397	140	154	29.64	30.05	+ .07	81.9	+ 3.2	96	21	91	65	26	73	21	74	71	74	0.48	— 3.1	4	5,807	sw.	59	nw.	26	14	13	4	4.0	
Nashville	546	128	134	29.51	30.07	+ .09	82.4	+ 4.9	98	21	93	66	1	72	26	73	70	72	1.24	— 2.2	5	3,511	w.	34	s.	23	18	8	5	3.4	
Lexington	989	75	102	......	......	......	79.3	+ 5.4	96	11	89	62	3	69	25	....	....	....	5.75	+ 2.2	10	5,080	sw.	42	nw.	14	8	21	2	4.6	
Louisville	525	114	136	29.50	30.05	+ .08	82.5	+ 6.2	101	10	94	67	2	71	30	72	69	73	3.43	— 0.1	9	4,223	sw.	41	n.	16	19	11	1	3.2	
Evansville	434	72	82	......	......	......	83.4	......	100	21	94	67	2	73	25	....	....	....	0.95	......	4	4,001	s.	44	n.	1	24	7	0	1.6	
Indianapolis	822	154	164	29.18	30.02	+ .01	79.4	+ 5.8	94	18	88	66	13	70	23	67	61	58	3.32	0.0	8	5,562	sw.	52	nw.	12	9	18	4	4.5	
Cincinnati	628	152	157	29.41	30.06	+ .06	80.0	+ 5.0	96	10	89	64	3	71	24	71	68	72	4.17	+ 0.4	11	3,698	se.	42	nw.	14	12	15	4	4.2	
Columbus	824	87	100	29.20	30.05	+ .06	78.5	+ 6.2	96	19	89	60	2	68	28	68	65	71	3.02	— 0.2	9	4,277	w.	38	nw.	15	17	13	1	3.5	
Pittsburg	842	116	123	29.16	30.03	+ .02	78.7	+ 5.9	98	11	89	54	2	68	32	68	64	67	0.84	— 2.3	7	3,658	nw.	30	nw.	15	11	19	1	4.5	
Parkersburg	638	77	84	29.41	30.08	+ .05	78.6	+ 6.5	98	11	90	57	5	68	35	70	67	73	3.32	— 0.7	8	2,959	sw.	39	n.	19	21	6	4	3.0	
Elkins	1,940	41	50	......	......	......	72.4	......	91	11	85	47	4	60	38	....	....	....	2.61	......	8	2,062	n.	27	nw.	15	10	16	5	4.5	
Lower Lake Region.							74.4	+ 5.0										74	2.64	— 0.3										4.4	
Buffalo	767	178	206	29.22	30.02	+ .04	73.0	+ 4.5	87	23	79	58	4	67	23	67	64	75	3.69	+ 0.5	12	7,770	sw.	34	w.	11	6	20	5	5.4	
Oswego	335	76	87	29.66	30.02	+ .02	71.3	+ 3.1	94	25	79	54	2	64	31	65	62	75	2.10	— 0.5	7	5,452	sw.	26	nw.	11	17	13	1	3.3	
Rochester	523	81	90	29.47	30.03	+ .03	73.7	+ 5.3	96	6	83	52	2	65	37	65	61	69	2.03	— 1.0	11	4,483	sw.	28	sw.	11	9	14	8	5.3	
Erie	713	92	102	29.29	30.02	+ .03	74.2	+ 4.7	90	25	80	55	2	68	23	68	65	75	2.26	— 1.0	8	5,802	w.	26	nw.	12	13	14	4	4.6	
Cleveland	762	190	201	29.25	30.03	+ .03	74.7	+ 5.1	91	10	82	56	2	68	24	67	64	71	1.79	— 1.3	13	7,726	se.	35	sw.	11	15	10	6	3.5	
Sandusky	629	62	70	29.38	30.03	+ .03	76.3	+ 5.3	95	10	85	59	2	68	24	69	66	75	4.91	+ 1.8	14	4,218	sw.	40	nw.	20	14	10	7	4.5	
Toledo	628	123	128	29.38	30.04	+ .05	76.6	+ 5.8	94	5	85	60	1	68	23	69	66	76	2.25	— 0.4	12	5,555	sw.	36	nw.	20	16	11	4	3.5	
Detroit	730	160	166	29.26	30.02	+ .02	75.5	+ 5.8	94	8	84	60	1	67	26	68	66	77	2.08	— 0.6	10	5,576	sw.	36	n.	20	12	12	7	4.9	
Upper Lake Region.							71.8	+ 6.1										80	3.91	+ 0.9										5.5	
Alpena	609	61	65	29.37	30.01	+ .02	69.7	+ 6.2	95	6	78	50	2	61	32	65	62	80	2.97	— 0.5	14	5,397	se.	38	ne.	19	12	6	13	5.5	
Escanaba	612	43	57	29.34	29.98	+ .01	70.0	+ 5.4	85	8	77	50	3	63	24	65	63	81	2.99	— 0.8	10	5,520	s.	29	w.	9	7	15	9	5.7	
Grand Haven	632	55	64	29.34	30.00	+ .02	73.3	+ 6.3	87	6	81	55	1	65	24	68	66	80	4.36	+ 1.7	10	5,042	sw.	42	w.	20	14	11	6	4.5	
Marquette	734	67	96	29.20	29.96	— .03	69.7	+ 6.1	93	4	77	54	4	62	27	64	63	83	1.98	— 0.9	15	5,921	sw.	32	se.	24	8	15	8	6.1	
Port Huron	638	70	108	29.37	30.00	— .02	74.2	+ 7.2	97	5	84	54	4	64	32	67	65	78	4.12	+ 1.6	13	5,853	sw.	48	se.	26	10	15	6	5.0	
Sault Ste. Marie	614	40	61	29.34	29.98	— .01	67.4	+ 6.6	89	5	77	49	2	58	31	63	61	84	4.27	+ 1.5	14	4,117	e.	30	nw.	30	8	15	8	5.5	
Chicago	823	241	274	29.15	30.00	— .02	76.3	+ 5.4	94	5	83	64	12	70	24	71	69	82	4.24	+ 1.3	11	9,958	sw.	45	sw.	15	11	16	4	4.5	
Milwaukee	681	124	142	29.29	30.00	+ .01	74.8	+ 6.5	96	5	83	61	13	67	27	68	66	79	3.76	+ 1.0	10	5,906	sw.	37	ne.	2	6	11	14	6.1	
Green Bay	617	49	57	29.34	29.99	— .02	75.2	+ 8.5	96	19	85	56	2	66	38	67	64	73	4.28	+ 1.4	8	4,802	sw.	45	nw.	20	6	13	12	6.1	
Duluth	702	95	115	29.18	29.92	— .04	67.6	+ 2.9	92	4	75	55	28	60	32	62	60	83	6.15	+ 2.8	20	6,702	ne.	38	nw.	4	3	18	10	6.2	
North Dakota.							71.7	+ 5.3										71	5.66	+ 3.7										3.9	
Moorhead	935	54	60	28.86	29.84	— .10	73.4	+ 8.2	93	7	84	48	28	63	32	66	64	77	9.58	+ 6.9	14	6,391	se.	36	nw.	22	9	14	8	5.5	
Bismarck	1,674	16	29	28.10	29.82	— .10	72.8	+ 5.8	105	1	84	47	27	60	35	63	59	69	2.92	+ 1.0	11	6,774	se.	42	w.	10	25	5	1	2.8	
Williston	1,875	15	31	27.89	29.82	— .08	68.8	+ 2.3	104	1	82	44	27	56	38	60	56	68	4.47	+ 3.3	11	6,835	n.	48	w.	6	23	8	0	3.4	
Upper Mis. Valley.							73.8	+ 7.0										73	3.72	+ 0.7										3.8	
Minneapolis	......	99	208	......	......	......	76.6	+ 7.5	94	18	86	58	28	67	27	....	....	....	6.67	+ 2.5	9	7,438	sw.	43	nw.	9	10	12	9	....	

Table I.—*Climatological data for Weather Bureau Stations, August, 1900*—Continued.

Stations.	Elevation of instruments			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.									Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Mean actual, 8 a.m. + 8 p.m. ÷ 2.	Mean reduced.	Departure from normal.	Mean max. + mean min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.				Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity: Miles per hour.	Maximum velocity: Direction.	Maximum velocity: Date.					
Up. Miss. V.—Con.																															
St. Paul	837	114	124	29.02	29.88	− .09	77.2	+ 8.1	96	4	87	58	29	68	29	68	64	70	3.13	− 0.2	10	4,994	s.	26	nw.	15	9	17	5	5.2	
La Crosse	714	70	78	....	....	....	77.7	+ 7.6	96	19	88	56	29	68	30	....		..	2.75	− 0.5	10	4,419	s.	30	w.	11	15	14	2	3.4	
Davenport	606	71	79	29.34	29.97	− .02	79.8	+ 7.0	97	5	90	63	17	70	28	71	67	71	4.90	+ 1.3	8	4,230	nw.	40	nw.	17	12	16	3	4.3	
Des Moines	861	84	88	29.06	29.96	− .01	77.7	+ 5.7	92	5	88	61	26	68	27	71	69	79	8.02	+ 4.8	9	5,612	sw.	37	se.	23	11	16	4	4.8	
Dubuque	698	101	109	29.25	29.97	− .02	78.0	+ 6.4	95	5	88	59	29	68	27	70	66	72	3.35	+ 0.2	8	3,902	s.	36	nw.	12	16	13	2	3.6	
Keokuk	614	63	78	29.34	29.97	− .01	82.2	+ 7.7	98	18	92	66	*	72	25	72	68	68	4.21	+ 1.4	7	4,684	sw.	34	sw.	12	18	13	0	2.9	
Cairo	356	87	98	29.67	30.04	+ .07	81.9	+ 4.9	97	21	91	65	26	73	22	74	71	75	0.27	− 2.6	4	4,163	sw.	37	nw.	26	15	13	3	3.8	
Springfield, Ill.	644	82	92	29.35	30.01	+ .01	80.2	+ 6.8	97	18	91	63	25	70	27	71	68	72	4.44	+ 2.1	11	5,266	sw.	44	w.	24	16	13	2	3.6	
Hannibal	534	75	110	....	....	....	82.2	+ 8.0	99	21	93	63	27	71	29	....	....	....	1.86	− 0.1	10	6,334	sw.	34	sw.	21	17	14	0	3.1	
St. Louis	567	111	210	29.42	30.00	+ .03	83.8	+ 7.0	99	18	92	68	26	75	23	75	72	75	1.30	− 2.2	5	6,348	s.	47	w.	23	19	6	6	3.5	
Missouri Valley.							78.4	+ 5.5										68	4.08	+ 0.9										3.9	
Columbia	784	4	84	....	....	....	81.2	+ 6.1	100	21	93	62	1	69	33	....	....	....	4.05	+ 1.2	8	4,844	s.	32	w.	24	15	10	6	4.1	
Kansas City	963	78	95	28.98	29.97	.00	80.2	+ 4.5	98	21	89	60	26	71	26	70	66	67	2.09	− 1.8	6	6,147	s.	36	nw.	27	19	6	6	3.2	
Springfield, Mo	1,324	100	108	28.65	30.00	+ .03	78.8	+ 4.8	96	21	88	60	25	70	23	70	66	69	4.73	+ 0.7	7	6,931	s.	36	n.	27	20	7	4	3.2	
Topeka	....	81	....	....	....	....	80.3	+ 5.5	100	20	91	57	26	69	34	....		....	2.07	− 2.4	8	....	s.	....	....	...	12	18	1	3.8	
Lincoln	1,189	75	84	28.65	29.87	− .09	78.6	+ 5.0	96	20	89	60	24	68	27	69	65	69	9.07	+ 6.0	8	8,733	se.	78	w.	21	16	10	5	3.9	
Omaha	1,105	115	121	28.76	29.89	− .07	79.0	+ 5.3	94	20	88	62	24	70	25	70	67	72	3.52	+ 0.2	9	5,647	se.	38	n.	15	18	12	1	3.5	
Valentine	2,598	39	40	27.20	29.82	− .14	74.8	+ 4.5	99	2	88	51	25	62	35	64	59	66	4.67	+ 2.6	10	8,506	s.	38	nw.	5	18	7	6	4.0	
Sioux City	1,135	96	164	....	....	....	77.2	+ 5.6	97	2	87	58	13	67	28	....	....	....	3.56	− 0.2	9	9,825	s.	47	nw.	15	18	10	3	3.5	
Pierre	1,572	11	19	28.18	29.79	− .15	78.6	+ 5.8	110	1	91	56	15	66	37	65	58	57	1.90	+ 0.2	10	8,703	se.	60	n.	12	13	13	5	4.3	
Huron	1,306	56	67	28.47	29.82	− .13	75.7	+ 7.3	103	2	87	53	25	64	37	68	65	75	6.66	+ 4.1	14	8,426	se.	46	nw.	22	14	15	2	3.9	
Yankton	1,233	52	58	....	....	....	77.6	+ 5.8	98	2	88	57	13	68	30	....	....	....	2.51	− 0.6	11	7,738	s.	43	w.	16	7	15	9	5.5	
Northern Slope.							69.1	+ 1.2										55	1.54	+ 0.2										4.4	
Havre	2,505	46	47	27.26	29.82	− .09	65.8	+ 0.2	101	1	80	35	27	52	42	54	46	57	1.62	+ 0.2	9	7,118	w.	37	n.	22	13	16	2	4.3	
Miles City	2,371	42	50	27.35	29.76	− .14	71.9	+ 0.2	106	1	86	42	27	58	44	63	59	72	4.58	+ 3.5	10	3,705	ne.	40	s.	6	20	10	1	2.9	
Helena	4,110	88	93	25.76	29.86	− .04	63.8	− 2.7	94	1	75	42	27	53	35	50	37	44	0.59	0.0	9	5,536	sw.	36	sw.	21	7	15	9	5.4	
Kalispell	2,965	45	51	26.87	29.91	....	58.4	....	90	1	71	36	27	45	38	49	41	60	1.48	....	12	4,773	w.	31	sw.	8	5	14	12	6.1	
Rapid City	3,234	46	50	26.51	29.73	− .17	73.2	+ 3.3	106	1	86	48	24	60	37	62	56	59	1.64	+ 0.3	10	5,365	w.	36	nw.	10	12	15	4	4.3	
Cheyenne	6,088	56	64	24.04	29.82	− .07	67.4	+ 2.4	92	1	83	45	23	52	46	50	31	38	0.70	− 0.9	6	6,317	nw.	43	sw.	14	9	20	2	4.1	
Lander	5,372	28	36	24.63	29.87	− .06	64.8	− 0.2	92	1	83	39	25	46	45	49	35	44	0.25	− 0.6	3	3,331	sw.	32	w.	21	12	15	4	4.1	
North Platte	2,821	43	52	27.01	29.84	− .09	76.7	+ 5.3	97	19	90	52	24	64	35	65	60	65	1.37	− 1.0	8	7,529	s.	49	nw.	23	14	15	2	4.3	
Middle Slope.							73.2	+ 3.6										56	1.45	− 1.2										3.6	
Denver	5,291	79	151	24.73	29.84	− .03	72.4	+ 2.3	97	1	88	46	25	56	41	54	40	40	0.05	− 1.4	4	5,876	s.	48	w.	3	12	14	5	4.4	
Pueblo	4,685	80	86	25.26	29.82	− .08	73.6	+ 1.3	96	14	90	44	25	57	43	55	40	39	T.	− 2.1	0	4,300	nw.	30	nw.	24	17	14	0	3.1	
Concordia	1,398	42	47	28.46	29.89	− .07	81.6	+ 7.2	103	20	93	58	24	70	35	69	64	62	3.12	+ 0.2	8	7,230	s.	28	nw.	23	14	17	0	3.6	
Dodge	2,509	44	52	27.34	29.85	− .06	80.2	+ 5.0	104	16	93	57	24	67	35	66	60	61	1.32	− 1.5	4	11,145	se.	40	s.	19	25	6	0	2.9	
Wichita	1,358	78	85	28.54	29.92	.00	81.7	+ 5.2	102	13	94	55	26	70	39	69	63	60	1.69	− 1.9	7	7,107	s.	30	n.	27	19	9	3	3.3	
Oklahoma	1,214	54	62	28.70	29.95	+ .03	79.9	+ 0.5	98	22	90	63	28	70	27	70	66	71	2.52	− 0.6	4	8,242	s.	44	ne.	28	17	9	5	4.0	
Southern Slope.							77.8	+ 1.3										64	1.47	− 1.4										3.2	
Abilene	1,738	45	54	28.16	29.92	− .02	80.6	+ 0.4	100	24	90	64	29	71	24	69	65	66	2.11	− 0.6	7	8,037	se.	36	ne.	29	16	10	5	3.9	
Amarillo	3,676	54	61	26.25	29.88	− .05	75.1	+ 2.2	96	23	87	60	2	64	34	64	57	62	0.83	− 2.1	5	12,750	s.	46	se.	3	21	6	4	2.5	
Southern Plateau.							78.7	− 1.6										31	0.25	− 1.0										2.2	
El Paso	3,762	10	110	26.14	29.82	− .03	81.2	+ 2.2	102	15	95	62	27	68	37	60	45	37	0.43	− 1.4	4	6,220	e.	37	ne.	16	16	12	3	3.5	
Santa Fe	7,013	47	50	23.34	29.89	− .05	68.6	+ 2.3	87	14	81	50	24	57	31	50	28	33	0.83	− 1.8	10	4,545	se.	29	s.	10	22	7	2	2.9	
Flagstaff	6,907	12	25	23.41	30.00	....	61.2	....	87	1	78	35	24	45	44	....	....	....	1.70	....	6	....	sw.	....	....	...	10	12	9	....	
Phenix	1,108	47	57	28.67	29.79	.00	86.2	− 2.0	107	1	101	64	12	71	40	61	40	26	0.01	− 1.0	1	3,575	nw.	26	s.	2	22	6	3	2.4	
Yuma	141	16	50	29.59	29.73	− .02	85.2	− 5.5	106	27	101	63	23	70	42	66	54	41	T.	− 0.4	0	4,066	w.	30	s.	3	28	2	1	1.0	
Independence	3,910	51	58	25.89	29.73	− .04	72.4	− 5.2	96	2	86	52	21	59	32	51	24	18	T.	− 0.2	0	5,910	se.	39	w.	2	26	5	0	1.0	
Middle Plateau.							68.9	− 2.9										27	0.26	− 0.3										2.8	
Carson City	4,720	82	92	25.24	29.90	+ .06	63.0	− 4.0	88	2	79	40	10	47	40	48	33	37	0.11	0.0	2	4,968	w.	38	w.	20	20	10	1	2.6	
Winnemucca	4,344	59	70	25.61	29.87	+ .03	64.8	− 5.8	93	1	81	38	23	49	43	48	26	27	T.	− 0.1	0	6,329	w.	35	sw.	10	19	8	4	3.4	
Cedar City	5,850	36	47	24.26	29.86	....	69.8	....	91	2	80	50	23	60	28	50	26	22	0.61	....	4	5,838	se.	34	se.	19	22	6	3	2.3	
Salt Lake City	4,366	105	110	25.55	29.81	− .05	74.0	− 0.6	94	1	86	52	25	62	35	53	30	24	0.72	0.0	3	4,760	se.	36	n.	24	23	8	0	2.0	
Grand Junction	4,608	43	50	25.34	29.83	....	73.8	− 1.3	100	1	89	48	23	58	43	52	32	27	0.19	− 1.0	5	4,141	nw.	27	se.	3	16	9	6	3.9	
Northern Plateau.							65.6	− 4.7										46	0.54	+ 0.3										4.5	
Baker City	3,471	53	58	26.41	29.93	− .01	60.6	− 5.5	90	1	73	40	17	49	35	49	37	49	0.92	+ 0.7	11	3,500	s.	22	ne.	20	8	11	12	5.6	
Boise	2,739	61	68	27.09	29.87	− .01	67.0	− 5.2	95	1	82	44	9	52	40	52	37	40	0.15	− 0.1	3	3,219	nw.	25	sw.	14	15	13	3	3.8	
Pocatello	4,482	48	56	25.42	29.82	− .08	67.7	− 1.9	93	1	82	46	12	53	41	52	38	39	0.32	− 0.1	5	7,561	s.	36	sw.	15	13	15	3	4.2	
Spokane	1,943	99	107	27.90	29.91	.00	64.0	− 5.0	88	20	76	42	26	52	34	52	40	49	0.64	+ 0.3	8	5,088	sw.	27	w.	25	6	15	10	5.6	
Walla Walla	1,000	65	73	28.88	29.92	.00	68.5	− 5.7	91	20	80	47	27	57	36	57	49	54	0.65	+ 0.5	7	4,742	s.	25	sw.	25	18	12	1	3.3	
N. Pac. Coast Reg.							60.4	− 1.7										75	1.17	+ 0.3										5.3	
Neah Bay	50	7	24	29.97	30.03	.00	56.8	− 2.1	65	19	62	45	26	51	18	54	53	90	2.35	+ 0.1	8	4,812	w.	35	w.	24	7	15	9	5.7	
Port Crescent	259	15	20	....	....	....	55.2	− 1.5	78	19	63	40	26	47	35	....	....	....	0.74	0.0	8	3,535	w.	20	w.	25	8	17	6	5.4	
Seattle	123	114	121	29.90	30.03	.00	62.6	− 0.6	83	14	71	49	28	55	28	56	52	72	0.30	− 0.3	4	3,648	se.	27	s.	24	4	19	8	5.8	
Tacoma	213	113	120	....	....	....	61.2	− 0.4	79	14	70	47	26	53	26	....	....	....	0.84	+ 0.1	5	3,862	sw.	22	sw.	23	6	17	8	5.8	
Astoria	20	57	64	30.06	30.08	+ .04	60.2	− 2.0	60	19	66	49	3	54	19	57	....	....	1.87	+ 0.8	9	4,770	nw.	18	sw.	1	9	12	10	5.6	
Portland, Oreg	154	203	213	29.87	30.03	+ .01	63.1	− 2.8	81	19	72	45	26	54	33	57	53	72	2.04	+ 1.5	7	4,963	nw.	30	s.	24	11	10	10	4.9	
Roseburg	518	56	67	29.44	30.00	− .01	63.4	− 2.8	84	14	76	45	8	51	34	55	48	65	0.03	− 0.2	1	2,966	nw.	22	ne.	3	15	9	7	3.9	
Mid. Pac. C'st Reg.							63.9	− 0.9										63	0.02	0.0										3.3	
Eureka	62	60	69	29.96	30.02	+ .01	57.0	+ 0.5	66	27	61	47	5	53	18	54	52	85	0.07	0.0	1	4,342	nw.	33	nw.	4	12	14	5	4.7	
Mount Tamalpais	2,375	11	18	27.50	29.94	....	64.0	....	92	2	72	45	18	56	24	52	42	52	0.00	....	0	13,568	w.	58	nw.	29	23	5	3	2.0	
Red Bluff	332	50	56	29.51	29.85	+ .01	77.0	− 4.1	104	1	90	56	19	64	38	59	44	38	0.05	0.0	1	4,050	se.	24	n.	3	29	2	0	1.0	
Sacramento	69	106	117	29.79	29.86	+ .01	70.2	− 2.5	102	2	85	51	8	56	43	58	51	57	0.00	0.0	0	6,899	sw.	24	sw.	7	25	4	2	2.3	
San Francisco	155	161	167	29.79	29.95	+ .03	59.7	+ 1.0	82	1	66	50	8	54	26	55	52	83	T.	0.0	0	9,746	sw.	38	sw.	7	18	10	3	3.4	
Point Reyes Light	....	12	16	....	....	....	55.6	+ 0.7	71	21	61	47	5	50	18	....	....	....	0.00	− 0.2	0	8,364	nw.	60	nw.	6	9	7	15	6.3	
S. Pac. Coast Reg.							68.7	− 2.8										67	T.	0.0										3.2	
Fresno	330	67	70	29.50	29.84	+ .02	75.2	− 6.5	108	2	91	53	20	59	40	58	44	40	0.00	0.0	0	4,066	nw.	13	n.	13	29	2	0	1.0	
Los Angeles	338	74	82	29.57	29.92	+ .04	68.5	− 1.9	93	2	78	51	20	59	27	61	58	76	T.	0.0	0	3,507	sw.	15	w.	20	8	22	1	3.6	
San Diego	87	94	102	29.82	29.92	+ .03	66.2	− 2.7	80	1	70	59	23	62	18	61	58	79	T.	− 0.1	0	4,447	sw.	25	sw.	3	28	1	2	3.0	
San Luis Obispo	201	10	46	29.76	29.98	+ .08	64.9	+ 0.1	106	2	75	49	9	54	43	57	53	72	T.	0.0	0	3,904	w.	20	s.	19	8	15	8	5.1	
West Indies.																															
Basseterre	29	41	54	29.97	30.00	....	81.2	....	87	25	86	67	31	76	17	76	74	78	3.41	....	20	8,219	e.	36	se.	31	7	19	5	5.2	
Bridgetown	30	57	65	29.93	29.96	....	81.4	....	90	31	87	74	4	76	15	77	75	82	6.57	+ 0.1	21	4,952	e.	24	e.	22	5	13	13	6.2	
Cienfuegos	52	62	67	29.94	29.99	....	82.5	....	95	28	92	70	13	73	22	76	74	88	3.67	....	16	5,035	ne.	24	se.	11	11	20	0	4.1	
Havana	57	83	100	29.97	30.03	....	81.0	....	90	23	87	71	13	75	18	76	74	83	1.72	− 4.3	10	8,208	ne.	32	ne.	18	7	20	4	5.2	
Kingston	286	38	52	29.65	29.95	....	81.0	....	95	24	90	71	22	72	23	74	71	77	2.92	....	11	4,251	ne.	26	se.	2	8	22	1	4.5	
Port of Spain	40	65	66	29.90	29.94	....	80.2	....	91	12	88	69	31	73	21	75	73	83	11.24	....	22	2,560	e.	21	e.	4	1	22	8	6.6	
Puerto Principe	352	55	62	29.65	29.99	....	82.0	....	94	24	92	69	6	72	23	75	73	84	0.91	....	6	6,446	ne.	25	e.	25	10	18	3	4.8	
Roseau	25	37	47	29.94	29.96	....	81.5	....	91	26	88	73	7	75	16	74	72	77	5.63	....	21	3,497	ne.	24	se.	17	8	11	12	6.0	
San Juan	82	48	73	29.93	30.01	....	80.8	....	90	29	86	70	9	76	18	76	74	80	7.00	+ 1.1	18	9,561	e.	43	ne.	31	14	11	6	4.4	
Santiago de Cuba	82	26	33	29.88	29.96	....	83.0	....	95	13	92	72	23	74	21	74	72	76	5.89	....	13	2,802	ne.	18	ne.	11	1	26	4	6.2	
Santo Domingo	57	37	41	29.96	30.02	....	80.5	....	93	31	88	71	20	73	20	75	73	85	6.77	....	21	4,075	n.	24	se.	19	11	18	2	4.1	
Turks Island	11	6	20			....	82.9	....	91	3	90	70	7	76	18				3.85	....	14						7	14	10	6.0	
Willemstad	75	39	46	29.83	29.99	....	83.3	....	90	29	88	75	7	79	13	76	74	76	0.40	....	7	10,040	e.	28	e.	20	13	18	0	3.7	

Note.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record. *Two or more dates.

TABLE II.—*Climatological record of voluntary and other cooperating observers, August, 1900.*

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
	°	°	°	Ins.	Ins.
Alabama.					
Ashville	97	63	79.6	1.44	
Bermuda	99	64	81.9	2.63	
Birmingham	100	69	82.5	1.99	
Brewton	104	66	83.7	3.91	
Citronelle	97	68	81.2	9.85	
Daphne	97	69	81.3	5.41	
Decatur	100	65	82.2	2.95	
Demopolis	.....	.....	.....	4.06	
Elba	98	64	83.2	2.99	
Eufaula *a*	103	64	83.5	1.37	
Eutaw	101	70	83.4	1.95	
Evergreen	96[d]	70[d]	82.4[d]	1.60	
Florence *a*	.....	.....	.....	1.44	
Florence *b*	96	64	81.4	1.63	
Fort Deposit	99	68	82.4	4.55	
Gadsden	103	63	82.0	2.91	
Goodwater	105	63	81.9	4.79	
Greensboro	97	70	81.6	3.61	
Hamilton	96	63	80.1	3.35	
Healing Springs	96	65	80.4	3.91	
Highland Home	96	67	82.3	6.32	
Livingston *a*	97	67	82.0	1.41	
Lock No. 4	98	66	80.7	2.51	
Madison Station	99	65	81.2	1.82	
Maplegrove	103	63	81.0	2.39	
Marion	100	63	83.4	3.05	
Newbern	97	70	82.4	4.19	
Newton	96	62	79.2	2.62	
Oneonta	95	63	78.2	7.13	
Opelika	99	67	80.6	4.05	
Oxanna	96	65	80.2	1.56	
Pineapple	100	62	81.6	0.50	
Prattville	96[j]	65[j]	82.1[j]		
Pushmataha	98	67	82.4	1.71	
Riverton	97	62	80.7	2.12	
Scottsboro	97	65	79.5	2.08	
Selma	101	67	82.0	2.74	
Talladega	103	64	82.1	2.91	
Tallassee	.....	.....	.....	4.06	
Thomasville	98	65	81.6	2.70	
Tuscaloosa	100	67	82.8	0.80	
Tuscumbia	99	66	83.4	1.44	
Tuskegee	104	66	83.0	4.72	
Union Springs	101	66	83.1	3.20	
Uniontown	99	67	82.6	2.69	
Valleyhead	99	62	78.8	4.29	
Warrior	.....	.....	.....	1.82	
Wetumpka	98	67	82.3	5.52	
Alaska.					
Sitka	67	40	55.2	7.92	
Arizona.					
Allaire Ranch	.....	.....	.....	0.72	
Arizona Canal Co. Dam	106	60	84.0	1.08	
Aztec *[5]	114	75	95.4	0.00	
Benson *[1]	97	70	83.8	1.64	
Bisbee	96	57	76.4	1.38	
Bowie *[5]	100	69	86.3	2.27	
Buckeye	107	56	82.4	0.50	
Camp Creek	101	63	80.8	0.23	
Casagrande *[1]	106	71	88.7	0.50	
Cochise *[1]	105	64	84.0	0.00	
Congress	103	65	82.7	0.19	
Dragoon Summit *[1]	98	65	79.5	0.30	
Dudleyville	105	51	80.1	1.92	
Fort Apache	95	46	70.4	1.31	
Fort Defiance	92	39	66.0	0.62	
Fort Grant	98	56	75.4	2.24	
Fort Huachuca	96	56	76.6	1.66	
Fort Mohave [1]	116	59	85.2	0.00	
Gilabend *[1]	109	74	89.2	0.00	
Maricopa *[1]	110	83	93.8	T.	
Mesa	108	60	84.0	0.14	
Mohawk Summit *[1]	115	75	91.0	0.00	
Mount Huachuca	95	57	75.2	3.99	
Natural Bridge	.....	.....	.....	0.87	
Nogales	100	55	78.0	2.15	
Oracle	94	59	77.4	3.27	
Oro	.....	.....	.....	1.49	
Pantano *[1]	96	65	79.7	2.06	
Parker	119	53[b]	86.7[b]	0.00	
Peoria	110	60	86.2	0.35	
Phenix	108	58	84.5	0.03	
Pinal Ranch	.....	.....	.....	2.63	
Prescott	98	42	67.4	1.70	
Sentinel *[1]	111	75	92.1	0.00	
Signal	114	50	82.5	T.	
Silverking	.....	.....	.....	1.40	
Strawberry	94	30	65.2	1.28	
Supai	115[b]	62[b]	84.2[b]	0.47	
Tombstone	97	59	78.4	1.98	
Tonto	102[e]	56	77.8[e]	1.55	
Tuba	102	54	75.6	0.50	
Tucson	105	57	82.7	0.95	
Vail *[5]	104	68	86.0	0.04	
Willcox	.....	.....	.....	1.57	
Winslow	99	50	72.0	1.73	
Arizona—Cont'd.					
Yarnell	.....	.....	.....	1.65	
Arkansas.					
Amity	100	62	80.6	8.08	
Arkadelphia	99	64	81.4	1.79	
Arkansas City	.....	.....	.....	0.06	
Batesville	103	63	82.6	3.65	
Beebranch	102	61	79.8	3.30	
Blanchard Springs	98	64	80.6	2.09	
Brinkley	98	62	81.2	3.50	
Camden *a*	.....	.....	.....	2.13	
Camden *b*	97	64	80.9	2.13	
Canton	102	61	80.0	6.40	
Conway	102	63	82.2	4.70	
Corning	102	65	81.0	2.42	
Dallas	98	63	81.2	2.16	
Dardanelle	.....	.....	.....	3.09	
Elon	97[f]	62[f]	81.2[f]	1.94	
Fayetteville	99	58	79.4	4.14	
Forrest City	99	64	81.8	1.11	
Fulton	.....	.....	.....	4.92	
Hardy	100	62	80.7	6.15	
Helena *a*	.....	.....	.....	3.68	
Helena *b*	97	63	82.0	3.11	
Hot Springs *b*	.....	.....	.....	3.75	
Ione	100	60	81.6	1.97	
Jonesboro	108	65	85.4	3.80	
Keesees Ferry	103	61	80.5	4.06	
Lacrosse	100	62	80.7	3.09	
Lonoke	103	63	81.6	2.99	
Lutherville	98	62	79.0	4.69	
Malvern	98	64	78.8	2.65	
Marianna	100	63	81.8	2.25	
Marvell	99	65	82.4	3.86	
Mossville	95	66	80.6	4.82	
Mount Nebo	93	67	77.8	3.14	
New Gascony	98	65	81.6	0.62	
Newport *a*	.....	.....	.....	3.60	
Newport *b*	103	62	81.8	4.33	
Newport *c*	103	59	81.4	3.97	
Oregon	99	61	78.8	4.35	
Ozark[c]	104	65	84.4	4.61	
Pinebluff	102	65	82.3	2.07	
Pocahontas	99	62	80.2	2.46	
Pond	97	57	78 6	2.81	
Prescott	102	65	82.8	0.59	
Rison	99	66	82.4	1.57	
Rosedale	100	62	81.8	2.74	
Russellville	100	65	81.8	5.35	
Silversprings	101	61	79.3	5.17	
Spielerville	102	62	82.2	4.89	
Stamps	99	65	83.4	0.96	
Stuttgart	102	63	81.0	0.88	
Texarkana	99	63	83.0	3.40	
Warren	100	63	80.9	1.88	
Washington	95	64	80.2	4.59	
Wiggs	99	62	80.1	5.66	
Witts Springs	99	59	79.2	4.32	
California.					
Ballast Point L. H	.....	.....	.....	0.00	
Berkeley	87	52	62.6	0.02	
Bishop	96	48	71.0	0.00	
Boca *[1]	90	30	52.4	1.22	
Bodie	82	17	51.2	0.05	
Bowman	.....	.....	.....	0.00	
Campbell	99	41	65.8	0.00	
Cape Mendocino L. H	.....	.....	.....	0.00	
Cedarville	89	38	63.2	0.10	
Chico *[1]	108	62	79.2	0.00	
Cisco *[1]	80	40	53.5	0.00	
Claremont	105	38	65.3	0.00	
Corning *[1]	103	67	78.1	0.00	
Craftonville	107	45	69.4	0.00	
Crescent City	71	40	56.8	0.29	
Crescent City L. H	.....	.....	.....	0.19	
Cuyamaca *[5]	83	43	66.3	T.	
Delano *[1]	107	65	78.4	0.00	
Delta *[1]	100	55	72.4	0.20	
Drytown	108	48	73.1	0.00	
Dunnigan *[1]	105	55	73.1	0 00	
Durham *[1]	104	56	75.3	0.00	
East Brother L. H	.....	.....	.....	0.00	
Edmanton *[1]	90	43	60.4	0.05	
Elcajon	100	46	69 4	0.00	
Elsinore	112	47	72.8	T.	
Escondido	105	40	67 6	0.00	
Fallbrook	106	48	69.7	0.00	
Fort Ross	80	45	59.3	0.00	
Georgetown	99	47	69.2	0.00	
Gilroy (near)	107	44	66.8	0.00	
Goshen *[5]	107	60	78.2	0.00	
Grand Island *[5]	103	52	75.0	0.00	
Greenville	94	30	60.5	0.00	
Healdsburg	104	38	66.8	0.00	
Hollister	105	41	64.1	0.00	
Humboldt L. H	.....	.....	.....	0.11	
Indio *[1]	109	68	89.4	0.00	
California—Cont'd.					
Iowa Hill *[1]	92	54	68.0	0.00	
Irvine	102	64	79.2	0.00	
Jackson (near)	96	48	68.0	0.00	
Kennedy Gold Mine	98	48	67.6	0.00	
King City *[1]	112	52	62.2	0.00	
Kingsburg	110	64	84.1	0.00	
Kono Tayee *c*	92	55	71.6	0.00	
Laporte *[1]	85	44	56.0	T.	
Lemoncove	110	50	76.2	0.00	
Lemoore *a*	106	58	77.7	0.00	
Lick Observatory	86	44	62.1	0.02	
Lime Point L. H	.....	.....	.....	0.00	
Lodi	103	49	70.6	0.00	
Los Gatos *b*	102	44	66.5	0.00	
Mammoth *[1]	111	82	93.0	0.00	
Manzana	103	48	74.7	0.08	
Mare Island L. H	.....	.....	.....	0.00	
Milton (near) *[1]	102	52	73.6	0.00	
Modesto *[1]	104	58	74.7	0.00	
Mohave *[1]	103	55	77.1	0 00	
Mokelumne Hill *[3]	....	50	66.6	T.	
Monterio	100	48	69.8	0.00	
Monterey *[5]	84	56	63.7	0.00	
Morena	97	44	66.4	0.06	
Napa *b*	110	45	65.8	0.00	
Needles	110	68	88.8	0.00	
Nevada City	89	43	62.7	0.00	
Niles *[1]	104	60	69.5	0.00	
North Bloomfield	92	46	65.5	0.00	
North Ontario	99	51	67.4	0.00	
North San Juan *[1]	99	60	72.3	0.00	
Oakland *a*	90	52	64.8	T.	
Ogilby *[5]	111	79	94.5	0.00	
Oleta *[1]	97	48	66.5	0.00	
Orland *[1]	106	62	78.3	0.07	
Palermo	108	48	73.2	0.00	
Paso Robles *b*	110	42	67.2	T.	
Peachland *[5]	98	49	65.8	T.	
Piedras Blancas L. H	.....	.....	.....	0.14	
Pine Crest	97	52	65.8	0.00	
Placerville	102	40	65.0	0.00	
Point Ano Nuevo L. H	.....	.....	.....	0.00	
Point Arena L. H	.....	.....	.....	0.00	
Point Bonita L. H	.....	.....	.....	0.00	
Point Conception L. H	.....	.....	.....	0.00	
Point Firmin L. H	.....	.....	.....	0.00	
Point George L. H	.....	.....	.....	0.22	
Point Hueneme L. H	.....	.....	.....	0.02	
Point Lobos	71	49	58.2	0.06	
Point Loma L. H	.....	.....	.....	0.00	
Point Montara L. H	.....	.....	.....	0.00	
Point Pinos L. H	.....	.....	.....	0.00	
Point Sur L. H	.....	.....	.....	0.00	
Pomona (near)	107	46	70.6	0.00	
Poway *[3] *g*	98	59	63.9	0.00	
Quincy	90	34	61.0	T.	
Redding	101	52	76.4	0.16	
Redlands	107	48	71.6	0.00	
Represa	98	52	71.4	0.00	
Riovista	103	53	71.2	0.00	
Riverside	107	48	71.4	0.00	
Roe Island L. H	.....	.....	.....	0.00	
Rosewood	107	52	78.9	0.08	
Sacramento *a*	102	50	70 2	0.00	
Salton *[5]	115	68	92.9	0.00	
San Bernardino	110	43	71.1	0 00	
San Jacinto	109	45	72.7	0.00	
San Jose	95	55	70.0	0.00	
San Leandro *[1]	92	60	65.6	0.00	
San Luis L. H	.....	.....	.....	0.00	
San Mateo *[1]	95	60	67.7	0.00	
San Miguel *[1]	106	51	69.2	0.00	
Santa Barbara *a*	87	52	65.0	T.	
Santa Barbara L. H	.....	.....	.....	0.00	
Santa Clara *a*	.....	.....	.....	0.00	
Santa Cruz *b*	108	43	62.8	T.	
Santa Cruz L. H	.....	.....	.....	0.00	
Santa Maria	91	50	65.0	T.	
Santa Monica	77	58	68.6	0.00	
Santa Paula	92	52	68.1	T.	
Santa Rosa *[1]	101	45	67.6	0.00	
Shasta	102	53	77.7	0.21	
Sierra Madre	99	51	68.6	0.00	
Sonoma	.....	.....	.....	0.00	
S. E. Farallone L. H	.....	.....	.....	0.00	
Stanford University	99	46	65.4	0.00	
Stockton	100	55	72.8	0.00	
Summerdale	89	39	61.1	T.	
Susanville	87	41	62.6	0.02	
Tehama *[1]	104	68	81.1	0.00	
Tejon Ranch	103	54	76.0	0.00	
Templeton *[1]	110	60	72.7	0.00	
Thermalito	107	53	74.9	0.00	
Trinidad L. H	.....	.....	.....	0.12	
Truckee *[1]	94	44	58.2	0.00	
Tulare	110	50	76.5	T.	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
California—Cont'd.	°	°	°	*Ins.*	*Ins.*
Ukiah	102	41	68.6	0.00	
Upperlake	99	44	69.2	0.00	
Upper Mattole *[1]	87	42	59.9	0.00	
Vacaville *a**[1]	105	57	71.0	0.00	
Ventura	83	53	65.2	0.00	
Volcano Springs *[1]	120	77	92.4	0.00	
Walnutcreek	104	55	71.7	0.00	
Wheatland	103	50	71.5	0.00	
Williams *[1]	102	58	78.6	0.00	
Wilmington *[1]	88	63	71.7	0.00	
Wire Bridge *[5]	101	55	73.9	0.00	
Yerba Buena L. H.	......	......	......	0.00	
Yreka	91	41	65.2	1.35	
Colorado.					
Alford	96	31	68.1	0.87	
Arkins	......	......	......	0.57	
Boulder	93	51	72.2	0.22	
Boxelder	......	......	......	0.55	
Breckenridge	77	27	51.8	0.74	
Buenavista	......	......	......	T.	
Canyon	94	42	71.8	0.07	
Castlerock	90	35	65.9	0.24	
Cedaredge	94	38	67.3	0.42	
Cheyenne Wells	100	45	75.2	0.30	
Clearview	78	33	56.4	0.61	
Colibran	......	......	......	0.17	
Colorado Springs	90	45	67.6	0.74	
Cope	98	46	75.0	2.44	
Cripplecreek	83	48	66.0	0.01	
Crook	100	45	76.0	4.59	
Delta	109	38	71.8	0.64	
Dumont	......	......	......	0.75	
Durango	95	31	62.8	0.48	
Fairview	88	31	60.6	0.49	
Fort Collins	94	41	68.0	0.16	
Fort Morgan	95	44	72.2	1.07	
Fox	......	......	......	1.25	
Gilman	......	......	......	1.35	
Gleneyrie	85	46	67.8	0.49	
Greeley	98	42	70.6	T.	
Grover	......	......	......	T.	
Gunnison	87	28	57.2	0.20	
Hamps	89	40	67.4	0.91	
Hoehne	95	39	70.0	1.04	
Holly	103	50	79.0	0.12	
Holyoke (near)	101	45	76.4	1.76	
Hugo	......	......	......	0.75	
Lamar	104	48	77.6	0.32	
Laporte	......	......	......	1.20	
Las Animas	99	42	74.8	0.30	
Leadville *[1]	78	36	53.9	0.36	
Leroy	97	45	74.9	0.99	
Longs Peak	79	33	56.2	0.17	
Mancos	93	33	63.8	0.03	
Marshall Pass	......	......	......	0.61	
Meeker	99	34	62.5	0.91	
Minneapolis	106	48	77.8	1.87	
Mitchell	......	......	......	0.34	
Montrose	......	......	......	0.50	
Moraine	88	38	61.0	0.23	
Pagoda	99	34	64.4	0.49	
Palmer	......	......	......	T.	
Parachute	101	44	72.1	0.24	
Rangely	106	37	66.5	0.50	
Rockyford	96	44	73.8	1.05	
Rogers Mesa	106	42	72.3	0.22	
Ruby	......	......	......	1.60	
Saguache	94	35	63.3	0.54	
Salida	93	31	64.6	T.	
San Luis	87	32	60.5	0.50	
Santa Clara	89	38	64.4	1.08	
Sapinero	......	......	......	0.41	
Sargents	......	......	......	0.38	
Seibert	......	......	......	0.78	
Silt	98	41	69.6	0.25	
Springfield	......	......	......	T.	
Strickler Tunnel	......	......	......	1.00	T.
Sugarloaf	88	30	60.8	1.12	
Trinidad	98	45	75.6	2.13	
Troutvale	82	21	52.1	0.56	
T. S. Ranch	95	46	71.0	0.12	
Twinlakes	......	......	......	0.80	
Vilas	......	......	......	0.07	
Wagon Wheel	84	20	52.2	0.38	
Walden	94	32	60.0	0.48	
Wallet	......	......	......	0.35	
Westcliffe	85	32	62.0	0.44	
Wray	97	46	75.0	2.60	
Yuma	......	......	......	2.22	
Connecticut.					
Bridgeport	101	50	74.2	2.60	
Canton	94	45	70.2	2.55	
Colchester	96[c]	47	72.2[c]	0.86	
Falls Village	......	......	......	1.87	
Hartford *b*	98	53	72.4	2.39	
Hawleyville	96	46	72.2	2.62	
Connecticut—Cont'd.	°	°	°	*Ins.*	*Ins.*
Lake Konomoc	......	......	......	2.47	
Middletown	98	45	73.0	1.89	
New London	93	57	73.9	0.89	
North Grosvenor Dale	96	45	70.8	1.57	
Norwalk	99	47	73.6	2.25	
Southington	94	49	71.5	1.90	
Storrs	92	47	69.9	2.03	
Voluntown	98[c]	44[c]	71.6[c]	2.00	
Wallingford	......	......	......	1.48	
Waterbury	101	46	74.9	2.09	
West Cornwall	94	45	70.6	2.18	
West Simsbury	......	......	......	2.67	
Winsted *[1]	95	52	68.7	......	
Delaware.					
Milford	......	......	......	0.75	
Millsboro	104	52	79.0	2.91	
Newark	98	55	76.7	4.26	
Seaford	102	56	80.4	3.63	
Wyoming	......	......	......	2.40	
District of Columbia.					
Distributing Reservoir *[5]	97	66	79.6	2.26	
Receiving Reservoir *[5]	95	63	79.3	2.48	
West Washington	102	58	80.0	2.25	
Florida.					
Archer	99	68	82.6	3.41	
Bartow	98	68	81.9	4.76	
Brooksville	94	69	81.1	6.98	
Carrabelle	96	70	82.5	5.00	
Clermont	100	65	82.7	4.63	
Dalkeith	98	70	82.2	28.0	
De Funiak Springs	102	68	83.0	0.87	
Deland	100	71	83.8	......	
Earnestville	101	71	84.2	8.66	
Eustis	100	68	84.6	4.43	
Fort Meade	98	68	81.7	16.05	
Gainesville	99	70	84.0	2.33	
Huntington	97	68	81.4	5.35	
Hypoluxo	98	71	82.0	1.03	
Inverness	99	69	82.0	4.17	
Jasper	99	67	82.4	1.38	
Kissimmee	101	69	82.9	3.23	
Lake Butler	100	65	82.2	3.47	
Lake City	103	66	83.3	2.35	
Macclenny	104	66	83.7	1.75	
Manatee	92	68	80.0	15.45	
Marianna	99	67	81.8	1.11	
Merritt Island	97	74	83.8	0.28	
Micanopy	......	......	......	1.84	
Middleburg	101	......	......	1.92	
Myers	92	70	80.2	9.77	
New Smyrna	100	67	80.2	2.10	
Ocala	100	65	82.6	8.40	
Orange City	100	......	......	2.78	
Orlando	99	72	82.4	7.41	
Plant City	98	69	82.5	6.60	
St. Andrews	101	69	83.0	3.50	
St. Augustine	101	73	82.6	......	
St. Francis	99	64	79.8	3.66	
Sebastian	94	72	82.1	0.57	
Stephensville *[1]	98	70	83.0	4.20	
Sumner	99	65	82.0	3.15	
Switzerland *[1]	97[e]	70[l]	80.6[e]	2.18	
Tallahassee	94	68	80.8	3.89	
Tarpon Springs	91	68	79.6	7.59	
Wausau	101	65	82.8	3.36	
Georgia.					
Adairsville	94[c]	67[c]	80.0[c]	1.08	
Albany	102	68	84.6	4.12	
Allapaha	99	64	82.4	2.34	
Allentown	103	64	84.6	3.11	
Americus	100	67	82.9	2.86	
Athens *b*	99	67	82.0	1.27	
Bainbridge	100	67	82.5	1.04	
Bellville	105	62	84.3	1.80	
Blakely	101	65	81.1	6.52	
Camak	101	66	84.0	2.45	
Canton	......	......	......	2.03	
Clayton	94	61	77.7	3.27	
Columbus	97[d]	71[d]	83.8[d]	1.64	
Covington	103	64	81.4	5.16	
Dahlonega	96	56	75.4	2.77	
Diamond	94	60	76.3	1.00	
Dublin	......	......	......	1.04	
Eastman	104	66	84.8	0.57	
Elberton	99	66	82.5	0.85	
Experiment	98	66	80.6	4.45	
Fitzgerald	103	62	83.4	1.07	
Fleming	106	60	83.2	1.51	
Fort Gaines	99	68	82.8	5.02	
Franklin	97[c]	61[c]	80.9[c]	1.01	
Gainesville	93	64	78.6	1.34	
Gillsville	100	62	81.0	1.36	
Greenbush	100	63	79.2	4.07	
Griffin	98	68	82.2	3.95	
Harrison	101	66	82.8	2.88	
Hawkinsville	100	70	82.8	1.97	
Georgia—Cont'd.	°	°	°	*Ins.*	*Ins.*
Hephzibah	......	......	......	1.20	
Jesup	99	66	82.6	7.37	
Lost Mountain	99	67	81.6	0.66	
Lumpkin	100	70	83.5	2.98	
Marshallville	98[d]	71[d]	82.9[d]	3.30	
Mauzy	102	63	83.2	4.68	
Millen	105	65	84.2	3.05	
Morgan	99	65	83.0	2.37	
Naylor	103	63	83.4	1.26	
Newnan	99	67	82.0	0.78	
Point Peter	107	65	83.4	0.73	
Poulan	100	62	81.4	2.12	
Putnam	101	65	82.0	2.17	
Quitman	100	62	81.9	2.70	
Ramsey	97	61	79.0	1.73	
Resaca	......	......	......	1.47	
Rome	99	66	81.4	2.39	
Statesboro	106	64	84.8	2.70	
Talbotton	102	63	82.5	1.28	
Tallapoosa	95	61	78.0	2.88	
Thomasville	101	67	83.4	3.46	
Toccoa	100	70	84.3	0.70	
Union Point	97	67	85.6	1.90	
Valona	105	68	83.5	1.39	
Washington	99	68	83.2	1.35	
Waycross	107	65	85.3	1.70	
Waynesboro	102	63	81.6	1.69	
Westpoint	99	68	82.6	3.77	
White Oak	......	......	......	1.15	
Idaho.					
American Falls	96	39	66.4	0.23	
Atlanta	87	31	57.4	0.37	
Blackfoot	99	40	65.8	0.60	
Burnside	91	35	62.8	0.15	
Challis	82	38	59.2	0.59	
Chesterfield	87	25	56.5	0.07	
Downey	92	37	62.6	0.01	
Forney	97	27	57.6	0.44	
Garnet	......	......	......	0.30	
Hagerman	105	45	75.2	0.10	
Hailey	99	36	65.0	0.06	
Idaho City	91[j]	32[j]	61.1[j]	T.	
Kootenai	90	39	58.4	2.26	
Lake	88	32	57.8	0.45	
Lakeview	88	40	61.4	0.91	
Moscow	93	47	64.2	0.78	
Murray	89	36	58.2	3.22	
Oakley	95	38	64.9	0.00	
Ola	98	37	67.7	0.38	
Paris	97	36	62.2	0.06	
Payette	102	40	68.2	0.16	
Pollock	99	40	64.9	1.07	
Priest River	87	35	59.8	1.50	
St. Maries	90	37	63.1	1.53	
Salubria	97	36	65.6	0.33	
Soldier	93	30	61.8	0.10	
Swan Valley	96	29	61.2	0.69	
Weston	93	40	65.9	0.37	
Illinois.					
Albion	100	61	81.6	1.36	
Alexander	97	62	80.0	3.69	
Ashton	96	57	76.6	9.34	
Astoria	97	61	79.5	3.89	
Aurora *b*	99	60	77.6	3.28	
Bushnell	101	64	82.6	4.04	
Cambridge	98	63	78.7	8.19	
Carlinville	101	63	80.8	1.42	
Carlyle	......	......	......	1.25	
Centralia	103	60	81.4	0.40	
Charleston	94	66	79.4	4.73	
Chemung	97	53	74.7	6.96	
Chester	......	......	......	1.91	
Cisne	99	63	80.7	1.75	
Coatsburg	101	63	82.4	3.29	
Cobden	105	62	82.5	0.51	
Danville	94	55	77.2	4.77	
Decatur	97	62	79.8	4.71	
Dixon	99	60	78.1	6.18	
Dwight	96	61	78.8	5.03	
Effingham	97	60	80.0	1.58	
Elgin	95	58	76.2	5.75	
Equality	108	61	84.0	1.15	
Flora	98	62	80.4	1.28	
Friendgrove *[5]	101	72	85.2	1.03	
Galva	98	60	78.6	8.21	
Glenwood *[5]	98[d]	62[d]	79.0[d]	4.01	
Grafton	......	......	......	2.46	
Grayville[e]	99	70	83.2	1.15	
Greenville	102	64	82.2	0.51	
Griggsville	102	61	82.6	1.81	
Halfway	103	63	82.7	0.68	
Halliday	102	63	82.2	3.00	
Havana	100	58	82.6	9.02	
Henry	98	60	78.8	6.79	
Hillsboro	102	65	82.6	0.42	
Joliet	96	60	77.4	5.74	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Illinois—Cont'd.	°	°	°	*Ins.*	*Ins.*
Kishwaukee	97	55	76.0	5.35	
Knoxville	100	60	78.4	4.23	
Lagrange	95[f]	54[f]	75.1[f]	4.81	
Laharpe	100	62	80.5	2.85	
Lakevilla	97[c]	55[c]	74.6[c]	11.03	
Lanark	99	54	76.1	4.46	
Loami	......	......	......	3.34	
McLeansboro	102	58	81.4	0.63	
Martinsville	95	64	79.6	3.37	
Martinton	97	59	78.2	5.10	
Mascoutah	100	63	81.5	1.47	
Mattoon	96	64	81.4	7.07	
Minonk	97	60	78.2	6.43	
Monmouth	100	58	79.0	4.28	
Monticello	98	62	79.0	5.37	
Morrisonville	99	61	80.2	1.95	
Mount Carmel	......	......	......	1.09	
Mount Pulaski	100	64	80.9	6.88	
Mount Vernon	103	61	80.6	1.81	
New Burnside	103	68	83.0	0.77	
Olney	100	65	82.3	1.36	
Ottawa	100	61	80.2	7.24	
Palestine	97	57	79.2	2.00	
Pana	96	60	80.2	1.98	
Paris	97	60	79.6	4.75	
Peoria *a*	......	......	......	5.28	
Peoria *b*	99	65	80.5	5.39	
Philo	97	61	78.1	6.88	
Plumhill	104	62	81.9	0.85	
Rantoul	99	63	78.6	5.91	
Raum	100	65	83.7	1.73	
Riley	97	57	75.8	7.09	
Robinson	98	63	80.8	1.88	
Rockford	97	58	78.0	9.22	
Roundgrove	96	59	76.4	5.03	
St. John	111	62	82.8	2.47	
Shobonier	101	62	80.8	2.93	
Strawn	98	61	79.2	5.94	
Streator	97	59	77.8	7.13	
Sullivan	98	63	80.1	3.17	
Sycamore	94	57	77.0	11.17	
Tilden	103	61	80.8	1.50	
Tiskilwa	99	60	78.6	7.76	
Tuscola	96	62	79.4	7.66	
Walnut	98	62	77.4	6.60	
Wheaton *[1]	96	63	79.2	3.53	
Winchester	100	64	82.2	1.52	
Winnebago	96	56	76.8	5.88	
Zion	94	58	77.1	2.59	
Indiana.					
Anderson	94	62	77.1	8.36	
Angola	92	58	75.4	3.86	
Auburn[d]	91	54	74.9	3.87	
Bedford	101	68	82.4	3.05	
Bloomington	96	63	80.2	1.64	
Bluffton	96	58	77.2	4.15	
Boonville	102	61	81.2	1.85	
Bright	98	61	78.2	2.69	
Butlerville	97	63	79.6	1.61	
Cambridge City	95	56	76.2	2.92	
Columbus	97	61	79.2	1.52	
Connersville	95	55	79.2	4.93	
Crawfordsville	102	54	78.4	4.40	
Delphi	96	60	78.1	4.43	
Edwardsville *[1]	94	68	80.7	3.59	
Fairmount	98	58	78.6	1.47	
Farmland	94	60	77.6	3.08	
Greencastle	92	64	78.4	2.75	
Greensburg	96	56	77.8	1.02	
Hammond	99	65	78.2	2.88	
Hector	97	59	77.2	4.16	
Huntington	95	60	78.9	4.19	
Jeffersonville	97	65	81.2	3.31	
Knightstown	96	60	78.9	5.13	
Kokomo	92	62	76.6	5.55	
Lafayette	96	60	78.6	4.21	
Laporte	100[e]	50	78.6[e]	5.51	
Logansport	94	61	77.5	3.22	
Madison *a*	99	62	80.4	3.16	
Madison *b*	......	......	......	4.01	
Marengo	96	61	79.5	3.22	
Marion	97	60	78.5	2.63	
Markle	94	56	75.8	4.60	
Mauzy	94	58	77.3	3.21	
Northfield	94	55	76.8	2.41	
Paoli	99	62	80.8	3.96	
Peru	97	60	77.4	3.55	
Prairie Creek	101	62	81.8	2.90	
Princeton	100	60	80.4	1.75	
Rensselaer	98	60	79.4	2.50	
Richmond	93	57	76.2	2.45	
Rockville	94	60	79.2	2.26	
Salem	99	58	80.1	3.75	
Scottsburg	98	62	80.6	3.09	
Seymour	96	66	80.7	3.45	
Shelbyville	95	62	78.2	2.04	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Indiana—Cont'd.	°	°	°	*Ins.*	*Ins.*
South Bend	93	56	76.4	6.43	
Syracuse	97	57	77.2	4.20	
Terre Haute	98	65	80.2	4.38	
Topeka	96	56	74.9	6.87	
Valparaiso	94	54	75.6	6.00	
Veedersburg	95	52	78.4	3.87	
Vevay	98	65	81.6	3.30	
Vincennes	100	66	83.2	1.43	
Washington	102	61	82.4	2.90	
Winamac	95	......	......	3.06	
Worthington	97	63	80.4	1.77	
Indian Territory.					
Bengal	103	55	82.8	1.26	
Claremore	106	63	82.4	1.46	
Fairland	102	60	80.5	1.75	
Hartshorne	104	59	85.0	2.13	
Healdton	103	61	82.2	1.11	
Lehigh	102	64	82.8	2.64	
Muscogee	105	......	......	1.60	
Pauls Valley	101	62	80.9	2.48	
Ryan	103	60	83.5	1.05	
South McAlester	......	......	......	1.58	
Tahlequah	99	61	80.6	2.05	
Tulsa	......	......	......	2.46	
Wagoner	107	60	83.4	2.22	
Webbers Falls	104	65	84.0	2.72	
Iowa.					
Afton	96	56	77.1	4.59	
Albia	95	58	77.8	4.24	
Algona *[1]	91	59	76.9	4.41	
Alta *a*	92	56	74.9	3.64	
Amana	93	60	77.5	5.35	
Ames *b*	94	58	76.8	5.46	
Ames (near)	......	......	......	6.80	
Atlantic	94	54	77.0	4.81	
Audubon	98	49	76.2	6.51	
Bancroft	93	47	75.4	3.78	
Batavia	......	......	......	2.40	
Baxter	95	59	77.9	5.06	
Bedford	99	53	78.5	3.78	
Belknap	95	61	79.1	4.54	
Belleplaine	95	62	77.0	6.96	
Bonaparte	100	62	80.8	3.61	
Britt	92	50	75.2	4.33	
Buckingham	......	......	......	3.39	
Bussey	......	......	......	7.92	
Carroll	93	58	76.7	9.01	
Carson	......	......	......	4.28	
Cedar Rapids	97	62	79.4	4.46	
Chariton	94	58	78.1	4.85	
Charles City	96	54	76.8	2.65	
Clarinda	98	56	78.2	5.67	
Clearlake	95	52	77.3	3.75	
Clinton	97	58	77.6	5.32	
College Springs	96	56	77.7	8.07	
Coon Rapids	92	60	78.2	6.83	
Corning	93	55	77.6	3.14	
Council Bluffs	96	60	79.1	5.32	
Crawfordsville	......	......	......	8.38	
Cresco	96	53	77.1	1.71	
Cumberland	......	......	......	3.59	
Danville	......	......	......	3.45	
Decorah	99	49	77.5	2.28	
Delaware	93	58	75.8	3.72	
Denison	93	57	76.4	7.32	
Desoto	95	59	78.0	9.30	
Dows	92	54	75.7	2.70	
Eldon	99	60	80.0	5.46	
Elkader	98	54	78.6	3.88	
Emerson	......	......	......	3.11	
Estherville	92	51	75.4	3.34	
Fairfield	99	60	78.7	3.64	
Fayette	93	56	75.7	2.76	
Fonda[k]	93	66	79.4	5.10	
Forest City	92	54	75.3	4.46	
Fort Dodge	93	55	76.5	6.87	
Fort Madison	......	......	......	3.82	
Galva	92	57	76.6	6.16	
Gilman	......	......	......	4.85	
Glenwood	95	63	79.6	3.95	
Grand Meadow *[1]	90	60	74.7	2.23	
Greene	95	55	77.6	2.37	
Greenfield	94	56	76.7	3.37	
Grinnell (near)	95	62	77.0	7.55	
Grundy Center	92	58	77.2	3.85	
Guthrie Center	100	53	78.2	6.52	
Hamburg	......	......	......	6.19	
Hampton	95	58	78.0	2.68	
Harlan	94	56	75.6	7.99	
Hawkeye	......	......	......	2.92	
Hedrick	97	58	77.4	5.48	
Hopeville	93	60	77.1	2.83	
Humboldt	94	57	77.8	3.32	
Independence	92	58	75.6	3.12	
Indianola	93	59	77.4	7.92	
Iowa City	99	62	78.6	6.27	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Iowa—Cont'd.	°	°	°	*Ins.*	*Ins.*
Iowa Falls	91	57	75.6	4.42	
Keosauqua	97	64	81.4	3.34	
Knoxville	95	59	78.2	9.78	
Lacona	......	......	......	5.25	
Lansing	96	54	77.6	3.02	
Larchwood	96	54	75.9	2.91	
Larrabee	92	55	76.0	2.23	
Leclaire	......	......	......	4.37	
Lemars	95	55	76.0	2.85	
Lenox	91	58	76.5	3.78	
Logan	97	58	77.5	4.63	
Maple Valley	......	......	......	3.94	
Maquoketa	95	57	76.3	4.43	
Marshalltown	95	60	78.3	7.31	
Monticello	96	52	76.3	2.97	
Mooar	99	......	......	4.49	
Mountayr	96	57	78.1	3.12	
Mount Pleasant	97	57	78.7	3.25	
Mount Vernon *b*	96	60	78.1	4.06	
Murray	......	......	......	3.20	
New Hampton	93	56	76.7	2.37	
Newton	93	60	76.9	6.11	
Northwood	91	56	75.3	3.34	
Odebolt	95	56	77.4	6.37	
Ogden	92	57	76.4	8.34	
Onawa	94	59	77.3	7.49	
Osage	90	54	74.2	3.23	
Osceola	94	60	78.0	5.29	
Oskaloosa	96	60	78.3	5.55	
Ottumwa	97	61	82.0	6.05	
Ovid	96	58	78.1	3.39	
Pacific Junction	92	56	76.7	3.81	
Pella	96	57	77.4	5.74	
Plover	95	54	75.8	2.40	
Primghar	94	60	77.4	1.85	
Redoak	95	58	78.4	3.39	
Ridgeway	98	62	78.5	2.11	
Rockwell City	93	58	76.6	6.53	
Ruthven	94	48	76.0	4.51	
Sac City	93	57	76.4	6.46	
Scranton	93	59	76.3	10.43	
Sheldon	93	44	74.4	1.85	
Sibley	98	51	75.0	6.29	
Sigourney	99	59	79.9	4.02	
Sioux Center	98[d]	56	75.8	3.20	
Spirit Lake	97	55	77.3	4.31	
Storm Lake	91	58	75.4	4.58	
Stuart	98	55	77.6	6.55	
Thurman	94	58	77.2	7.32	
Toledo	96	50	77.5	6.89	
Villisca	97	55	77.7	4.45	
Vinton *[1]	93	62[f]	77.0	2.74	
Wapello	103	65	82.1	5.69	
Washington	98	60	78.2	7.22	
Washta	......	......	......	4.31	
Waterloo	95	57	77.5	3.48	
Waverly	93	59	77.4	2.33	
Westbend *[1]	94	59	75.4	3.34	
Westbranch	100	56	78.0	7.49	
West Union	......	......	......	1.26	
Whitten	96	60	76.1	4.74	
Wilton Junction	98	60	79.3	7.40	
Winterset	94	58	78.1	5.53	
Woodburn	......	......	......	5.91	
Kansas.					
Abilene	106	57	82.2	3.34	
Altoona	108	59	82.8	0.93	
Anthony	......	......	......	0.64	
Atchison *a*	100	58	79.3	4.08	
Baker	99	51	77.0	6.70	
Beloit	103	60	83.4	1.93	
Burlington	104	56	80.7	2.93	
Campbell	103	58[e]	80.0[d]	2.94	
Chanute	104	......	......	0.50	
Coburn *[1]	104	60	78.6	4.60	
Colby	105	48	78.7	1.49	
Columbus	101	59	79.6	4.13	
Coolidge	104	47	77.8	0.12	
Delphos	104	57	81.8	4.68	
Dresden	103	52	77.8	2.20	
Ellinwood	105	59	82.0	3.01	
Emporia	99	59	81.0	3.00	
Englewood	105	56	86.7	2.15	
Eureka	......	......	......	0.70	
Eureka Ranch	110	55	82.4	3.52	
Fallriver	104[c]	55[c]	82.0[c]	0.29	
Fanning	101	57	79.0	9.05	
Fort Scott	105	60	81.8	3.54	
Frankfort	104	54	80.6	1.61	
Garden City	107	53	81.6	0.80	
Grenola	104	52	81.0	1.05	
Hays	105	56	81.4	3.46	
Horton	100	57	78.0	7.46	
Hoxie	105	50	78.8	0.74	
Hutchinson	104	55	81.0	2.42	
Independence	107	59	84.3	0.63	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Kansas—Cont'd.	°	°	°	*Ins.*	*Ins.*
Lakin	101	52	78.8	0.45	
Lawrence	98	58	79.0	3.22	
Lebanon	105c	55b	82.6c	3.00	
Lebo	102	55	81.0	3.87	
Little River	105	51	81.2	4.45	
Macksville	104	56	80.7	1.19	
McPherson	107	58	82.8	3.69	
Madison	103	53	79.8	2.29	
Manhattan *b*	105	56	82.6	2.84	
Manhattan *c*	104	56	83.0	2.82	
Marion	106	58	82.2	2.80	
Meade	106	60	83.3	1.98	
Medicine Lodge	105	55	82.2	0.22	
Minneapolis	107	49	82.7	2.67	
Moran	99	61	80.8	1.82	
Mounthope *[1]	102	64	82.8	0.42	
Ness City	106	57	82.2	3.38	
Newton	104	57	81.1	3.43	
Norwich	103	58	81.7	0.66	
Oberlin	......	......	......	1.70	
Olathe	100	56	79.8	3.63	
Osage City	103	53	80.0	2.33	
Oswego	101	58	81.6	2.45	
Ottawa	102	57	79.2	2.83	
Phillipsburg	110	56	84.8	0.75	
Pratt	107	58	80.8	0.50	
Rome	105	56	81.0	0.91	
Russell	109	57	84.0	1.25	
Salina	107	58	83.0	1.10	
Sedan	104	54	81.8	1.02	
Seneca	101	55	78.8	1.84	
Toronto	105	57	82.3	1.12	
Tribune	102	52	77.0	1.29	
Ulysses	106	55	79.8	T.	
Valley Falls	......	55	......	2.46	
Viroqua	107	50	79.9	0.01	
Wallace	......	......	......	0.67	
Wamego *[1]	104	62	80.2	3.55	
Winfield	102	55	81.4	2.00	
Yates Center	105	54	81.2	0.87	
Kentucky.					
Alpha *[8]	100	69	80.2	2.04	
Bardstown	102	62	81.9	5.21	
Blandville	97	64	81.4	0.48	
Bowling Green	98	66	82.4	1.67	
Burnside	......	......	......	1.34	
Canton *[1]	98	70	81.8	0.28	
Carrollton	98	66	81.6	3.10	
Catlettsburg	98	54	79.0	2.09	
Earlington	99	64	82.2	2.67	
Edmonton	98	59	80.0	3.73	
Eubank	94	59	77.2	3.23	
Falmouth	......	......	......	6.27	
Fords Ferry	101	59	80.1	1.07	
Frankfort	96	62	79.8	5.26	
Greensburg	99	61	80.5	4.31	
Henderson	100	66	82.7	1.31	
Hopkinsville	97	62	80.8	0.12	
Irvington	94	64	79.6	2.31	
Jackstown	97	57	78.4	4.65	
Leitchfield	96	62	79.9	3.21	
Loretto	96	60	78.8	1.32	
Marrowbone	96	64	79.9	0.78	
Maysville	102	57	80.8	4.01	
Middlesboro	97	62	76.4	2.51	
Mount Hermon	93	62	78.2	2.56	
Mount Sterling	94	60	78.7	4.77	
Owensboro	99	66	81.8	1.57	
Owenton	100	63	80.2	3.84	
Paducah *a*	......	......	......	0.21	
Paducah *b*	104	66	85.5	0.69	
Pikeville	99	62	80.2	6.81	
Princeton	101	63	82.4	0.05	
Richmond	97	60	80.2	2.40	
St. John	95	62	78.7	4.57	
Scott	98	59	79.2	4.06	
Shelby City	100	59	78.8	3.62	
Shelbyville	101	60	81.4	6.58	
Vanceburg	99	52	78.6	2.25	
Warfield	95	59	78.0	1.71	
Williamsburg	98	66	81.3	2.30	
Louisiana.					
Abbeville	92	70	80.8	4.59	
Alexandria	100	67	82.8	6.54	
Amite	97	68	81.7	5.20	
Baton Rouge	96	69	81.8	4.86	
Burnside	95	67	80.8	7.91	
Calhoun	97	68	81.2	1.47	
Cheneyville	96	69	82.4	5.27	
Clinton	94	67	80.0	3.25	
Como	98	65	80.6	2.00	
Covington	95	69	81.1	7.48	
Donaldsonville	95	68	80.4	8.25	
Farmerville	95	60	78.7	2.58	
Franklin	95	70	81.0	11.26	
Grand Coteau	95	68	81.2	3.20	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Louisiana—Cont'd.	°	°	°	*Ins.*	*Ins.*
Hammond	98	68	82.1	3.56	
Houma	98	70	81.8	5.87	
Jeanerette	100	67	81.2	7.70	
Jennings	96	67	80.7	5.24	
Lafayette	97	68	81.4	3.93	
Lake Charles	96	70	82.2	4.05	
Lake Providence	98	67	81.8	1.57	
L'Argent	96	68	80.8	1.39	
Lawrence	98	69	83.2	3.88	
Libertyhill	100	64	82.1	4.97	
Mansfield	96	64	80.4	1.51	
Melville	97	62	79.8	6.37	
Minden	98	60	82.2	1.06	
Monroe	97	67	82.0	1.86	
Montgomery	92	69	80.0	4.00	
New Iberia	92	69	80.8	12.65	
Opelousas	96	61	81.8	5.27	
Oxford	95	65	80.0	3.09	
Paincourtville	96	69	81.6	8.98	
Plain Dealing	99	64	81.8	2.45	
Prevost	100	63	82.6	5.79	
Rayne	99	67	81.9	2.52	
Robeline	95	65	80.0	3.50	
Ruston	96	66	81.0	1.92	
Schriever	99	68	82.0	7.21	
Shellbeach	91	73	80.8	7.33	
Southern University	95	......	......	4.04	
Sugar Ex. Station	94	71	82.2	5.00	
Sugartown	93	70	81.4	5.24	
Venice	94	69	81.2	7.78	
Wallace	95	63	81.3	5.62	
White Sulphur Springs	......	......	......	2.23	
Maine.					
Bar Harbor	94	......	......	1.90	
Bemis	88	43	66.8	2.28	
Calais	93	44	65.6	1.49	
Carmel	94	40	66.2	1.46	
Cornish *[1]	93	51	67.7	3.65	
Fairfield	91	48	66.2	1.76	
Farmington	94	42	66.2	2.30	
Flagstaff	89	39	62.4	2.17	
Gardiner	96	50	69.6	2.77	
Kineo	86	55	67.5	1.51	
Lewiston	98	50	68.9	3.69	
Mayfield	92	43	65.0	1.25	
North Bridgton	97	46	69.2	2.16	
Orono	94	43	66.3	1.58	
Rumford Falls	98	46	67.6	2.42	
Winslow	95	43	68.4	2.55	
Maryland.					
Annapolis	100	63	80.9	1.07	
Bachmans Valley	98	50	76.2	2.77	
Boettcherville	100	51	78.6	1.82	
Boonsboro *a*	99	51	78.0	2.73	
Chase	102	52	77.6	4.41	
Chewsville	99	56	77.0	3.00	
Clearspring	97	56	75.8	2.85	
Collegepark	103	55	79.7	2.09	
Cumberland *a*	100	62	82.2	1.66	
Cumberland *b*	......	......	......	1.21	
Darlington	103	56	78.4	5.59	
Deerpark	89	41	69.7	3.65	
Easton	101	55	79.6	4.67	
Ellicott City	......	......	......	1.64	
Fallston	103	55	78.2	3.87	
Frederick	100	56	79.3	1.96	
Frostburg	94	48	73.6	1.57	
Grantsville	91	45	71.4	2.50	
Greatfalls	98	58	77.6	1.77	
Greenspring Furnace	100	52	77.5	2.66	
Hagerstown	101	52	78.6	3.33	
Hancock *c*	103	50	78.8	1.48	
Harney	......	......	......	3.48	
Jewell	100	60	78.7	3.82	
Johns Hopkins Hospital	101	57	78.8	3.63	
Laurel	102	52	79.1	0.85	
McDonogh	100	54	77.4	4.85	
Mount St. Marys Coll	99	54	76.4	4.45	
Newmarket	97	54	77.0	2.57	
Pocomoke	99	57	79.6	3.32	
Princess Anne	98	53	77.9	3.56	
Rockhall *b*	101	55	79.0	4.26	
Sharpsburg	100	55	78.2	1.67	
Smithsburg *a*	99	50	76.5	3.33	
Smithsburg *b*	96	53	77.2	3.57	
Solomons	103	65	82.7	6.77	
Sudlersville	96	56	75.9	2.81	
Sunnyside	93	42	71.0	5.04	
Takoma Park	100	57	78.4	2.13	
Taneytown	101	58	79.1	2.80	
Van Bibber	100	58	78.0	5.48	
Westernport	95	50	75.2	1.76	
Westminster *c*	99	50	75.3		
Woodstock	98	56	77.4	3.01	
Massachusetts.					
Amherst	92	44	69.9	4.16	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Massachusetts—Cont'd.	°	°	°	*Ins.*	*Ins.*
Bedford	92	49	69.7	1.93	
Bluehill (summit)	96	48	70.1	1.36	
Cambridge	97	49	71.6	2.76	
Chestnuthill	98	50	71.8	2.15	
Cohasset	......	......	......	1.71	
Concord	98	42	69.0	1.91	
East Templeton *[1]	92	51	69.0	3.61	
Fallriver	94	51	71.5	2.17	
Fitchburg *a* *[1]	93	53	69.4	3.97	
Fitchburg *b*	97	48	70.8	3.63	
Framingham	96	47	70.2	2.25	
Groton	94	43	69.0	3.90	
Hyannis *[1]	95	58	69.5	1.36	
Jefferson	......	......	......	2.79	
Lawrence	96	49	70.4	3.54	
Leeds	93	45	70.0	4.17	
Leominster	......	......	......	3.53	
Lowell *a*	95	49	71.6	3.73	
Lowell *b*	96	43	70.0	......	
Ludlow Center	90	40	66.7	3.16	
Middleboro	94	43	69.2	1.54	
Monson	92	45	69.4	3.54	
New Bedford *a*	93	50	70.4	1.63	
Pittsfield	90	46	69.2	4.69	
Plymouth *[1]	94	59	68.5	2.05	
Princeton	......	......	......	3.75	
Provincetown	94	56	72.0	2.03	
Somerset *[1]	102	48	74.4	3.08	
South Clinton	......	......	......	3.29	
Springfield Armory	98	49	72.6	1.62	
Sterling	......	......	......	2.90	
Taunton *c*	94	43	69.3	2.43	
Westboro	95	47	71.4	2.41	
Weston	93	45	69.4	2.52	
Williamstown *[1]	89	55	68.8	5.91	
Winchendon	......	......	......	3.31	
Worcester *b*	92	49	70.0	2.76	
Michigan.					
Adrian	94	53	74.8	2.50	
Agricultural College	94	45	73.3	2.98	
Allegan	95	54	75.8	2.22	
Alma	98	47	74.4	5.16	
Ann Arbor	98	52	75.4	2.04	
Annpere	97	......	......	1.15	
Arbela	97	49	73.4	6.77	
Badaxe	98	52	73.8	3.78	
Ball Mountain	96	50	73.6	5.42	
Baraga	99	42	71.8	......	
Battlecreek	96	54	75.7	2.40	
Bay City	99	51	74.4	4.88	
Berlin	96	46	72.4	5.89	
Berrien Springs	95	54	75.7	7.71	
Big Rapids	97	46	72.5	8.81	
Boon	92	38	69.2	3.79	
Calumet	89	51	67.3	4.67	
Carsonville	98	48	73.0	3.33	
Charlevoix	95	50	72.7	3.04	
Chatham	96	42	70.9	3.12	
Cheboygan	93	48	71.2	7.33	
Clinton	98	51	75.8	2.02	
Coldwater	95	52	75.3	1.73	
Deerpark	91	45	66.8	5.73	
Dundee	94	53	74.7	2.43	
Eagle Harbor	95	50	67.1	4.14	
East Tawas	98	52	71.8	4.79	
Eloise	98	50	76.4	2.33	
Ewen	90	52	67.1	3.70	
Fairview	95	55	75.2	2.67	
Fitchburg	95	50	73.8	3.52	
Flint	96	49	73.6	5.00	
Frankfort	93	......	......	3.91	
Gaylord	95	41	70.2	5.41	
Gladwin	98	49	72.8	3.20	
Grand Marais	91	47	68.8	3.45	
Grand Rapids	96	56	76.2	5.92	
Grape	96	53	75.4	2.23	
Grayling	96	43	70.4	2.15	
Hanover	94	53	74.8	2.23	
Harbor Beach	100	50	72.4	4.96	
Harrison	97	42	72.0	3.65	
Harrisville	98d	52d	69.8d	5.23	
Hart	98	51	75.0	2.91	
Hastings	96	50	74.4	4.78	
Hayes	97	45	72.2	6.91	
Highland Station	......	......	......	7.08	
Hillsdale	94	50	74.5	1.80	
Holland *[10]	87	61	75.6	......	
Humboldt	93	32	66.4	4.04	
Ionia	99	50	74.4	7.40	
Iron River	91	37	68.6	4.88	
Ishpeming	91	40	68.4	3.32	
Ivan	95	43	70.2	4.00	
Jackson	99	53	76.3	2.29	
Jeddo	97	49	72.2	4.64	
Kalamazoo	95	56	76.7	2.78	
Lake City	95	36	70.6	1.60	

TABLE II.—*Climatological record of voluntary and other cooperating observers.*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Michigan—Cont'd.	°	°	°	*Ins.*	*Ins.*
Lansing	94	54	74.5	3.86	
Lathrop	92	38	67.5	4.89	
Lincoln	95	38	69.6	4.97	
Ludington	88	50	73.2	2.69	
Mackinac Island	85	49	68.6	2.58	
Mackinaw	93	48	69.3	4.77	
Madison	96	3	75.6	2.69	
Mancelona	96	41	71.0	3.43	
Manistique	82	48	67.6	3.39	
Menominee	96	55	74.0	4.13	
Middle Island *[10]	91	57	70.4	......	
Midland	99	45	73.4	3.12	
Mottville	95	54	74.2	4.22	
Mount Clemens	99	51	76.4	1.85	
Mount Pleasant	97	40	72.4	4.30	
Muskegon	91	57	74.4	2.50	
Newberry	92	35	65.0	1.64	
North Marshall	95	54	74.4	2.25	
Northport	92	51	71.8	1.10	
Old Mission	95	52	71.4	3.68	
Olivet	91	56	73.4	2.33	
Omer	98	......	......	3.35	
Ontonagon	97	47	69.4	3.02	
Ovid	98	49	75.1	2.92	
Owosso	100	50	74.4	4.09	
Petoskey	93	45[d]	69.3[d]	4.15	
Plymouth	98	53	77.6	3.02	
Port Austin	97	48	73.0	4.17	
Reed City	97	46	75.2	4.61	
Roscommon	99	39	69.4	2.93	
Saginaw	99	51	75.1	5.23	
St. Ignace	88	49	69.5	4.77	
St. Johns [b]	97	53	76.3	......	
St. Joseph	97	56	76.9	7.78	
Sidnaw	95	38	69.4	4.20	
Somerset	93	51	74.2	3.02	
South Haven	89	58	74.2	8.31	
Stanton	98	40	74.6	3.83	
Thomaston	94[e]	44[e]	67.8[e]	5.10	
Thornville	93	52	74.2	3.06	
Traverse City	97	50	74.0	3.35	
Vandalia	94	56	75.9	3.71	
Vassar	99	45	73.6	5.70	
Wasepi	92	54	74.4	2.95	
Waverly	94	53	75.6	4.43	
West Branch	96	47	72.4	3.45	
Wetmore	92	38	67.6	2.45	
Whitecloud	99	49	73.6	4.70	
Whitefish Point	85	46	65.4	4.82	
Williamson	96	51	77.2	......	
Ypsilanti	98	51	73.6	1.34	
Minnesota.					
Ada	93	44	71.8	5.49	
Albert Lea	96	56	76.4	3.80	
Alexandria	99	50	73.4	16.52	
Ashby	99	52	74.4	8.70	
Bemidji	90	47	72.0	8.86	
Bird Island	99	50	77.3	2.59	
Blooming Prairie	95	49	75.6	2.20	
Camden [f]	98	59	74.0	2.74	
Campbell	94	46	70.7	6.02	
Collegeville	97	58	75.0	8.68	
Crookston	92	47	71.8	7.51	
Currie	100[c]	50[c]	75.0[c]	......	
Deephaven	......	......	......	5.27	
Detroit City	92	42	71.1	10.88	
Faribault	93	52	76.4	3.87	
Farmington	93	54	75.3	4.47	
Fergus Falls	95	52	73.8	8.44	
Grand Marais	......	......	......	7.60	
Grand Meadow	96	50	77.3	2.27	
Hallock	93	37	70.2	4.83	
Hovland	......	......	......	11.94	
Lake Jennie	97	50	76.4	4.54	
Lakeside	96	52	75.5	4.58	
Lake Winnibigoshish	93	50	69.9	10.63	
Leech *[1]	94	......	67.9	7.95	
Leroy	......	59	......	3.52	
Long Prairie	100	45	74.0	11.57	
Luverne	94	54	74.8	3.82	
Lynd	98	50	75.0	2.24	
Mapleplain	95	50	75.8	5.46	
Milan	100	49	76.8	4.22	
Minneapolis *a*	95	54	76.3	7.07	
Minneapolis *b*[1]	96*	52	75.5	6.11	
Minnesota City *[1]	92	60	77.3	1.89	
Morris	99	54	76.2	7.31	
Mount Iron	95	45	70.6	10.14	
Newfolden	90	38	68.4	9.91	
New London	102	55	75.8	8.24	
New Richland *[1]	96	60	76.1	......	
New Ulm	101	50	79.2	3.35	
Park Rapids	94	45	71.2	9.55	
Pine River	96	50	72.2	9.24	
Pipestone	93	54	74.2	1.99	
Pleasant Mounds	94	53	76.0	3.13	
Minnesota—Cont'd.	°	°		*Ins.*	*Ins.*
Pokegama Falls	95	41	70.4	9.85	
Redwing	......	......	......	3.56	
Rolling Green	92	55	75.2	3.35	
St. Charles	95	48	75.8	1.53	
St. Cloud	103	54	77.1	9.28	
St. Peter	92	45	76.6	2.82	
Sandy Lake Dam	95	45	71.6	8.54	
Shakopee	95	52	76.4	4.22	
Thief River Falls	......	......	......	9.63	
Tower	98	......	......	5.40	
Two Harbors	89	45	66.0	9.88	
Wabasha *[1]	99	63	76.1	3.84	
Willow River	95	45	72.6	7.23	
Winnebago City	95	55	76.2	3.46	
Worthington	91	53	74.0	4.70	
Mississippi.					
Aberdeen	100	68	81.8	1.10	
Agricultural College	103	68	83.7	0.83	
Austin	95	62	77.4	1.57	
Bay St. Louis	97	71	82.0	6.42	
Biloxi	97	71	83.0	3.45	
Booneville	94	67	79.8	2.58	
Brookhaven	100	61	81.6	3.44	
Canton	95	67	81.6	1.96	
Columbus *a*	......	......	......	0.64	
Columbus *b*	98	64	83.3	0.64	
Crystalsprings	97	66	81.4	2.31	
Edwards	97	69	82.9	0.40	
Fayette	93	60	79.8	0.80	
Fayette (near) *[1]	96	70	81.8	......	
Greenville *a*	96	69	83.4	1.00	
Greenville *b*	96	69	83.0	0.93	
Greenwood	94	71	82.8	2.45	
Hattiesburg	94	72	83.6	2.17	
Hazlehurst	98	67	81.9	2.79	
Jackson	100	62	79.5	1.05	
Kosciusko	98	68	82.4	2.20	
Lake	94	64	78.8	1.98	
Latonia	99	68	81.6	5.69	
Leakesville	100	65	82.2	4.89	
Logtown	98	69	81.2	8.07	
Louisville	97	64	81.2	1.19	
Macon	100	67	82.6	2.69	
Magnolia	97	68	81.8	3.08	
Natchez	97	70	82.5	1.00	
Okolona	100	65	82.8	0.75	
Palo Alto	96	68	82.2	3.82	
Pontotoc	96	65	83.8	1.49	
Port Gibson	87	66	81.5	1.26	
Ripley	98	66	80.4	1.45	
Shoccoe	92	72	82.0	1.72	
Stonington *[1]	92	68	79.7	......	
Thornton	......	......	......	0.62	
Tupelo	......	......	......	1.44	
Walnutgrove	95[f]	68[f]	81.2[f]	3.28	
Watervalley	......	......	......	1.83	
Waynesboro	95	65	79.9	3.30	
Windham	......	......	......	2.82	
Woodville	96	69	81.7	2.74	
Yazoo City	99	68	83.3	1.30	
Missouri.					
Appleton City	105	62	82.8	5.78	
Arthur *[3]	......	65	78.0	6.66	
Avalon	101	59	80.2	2.08	
Bethany	98	55	78.2	2.88	
Birchtree	99	60	79.2	4.97	
Boonville	......	......	......	6.09	
Brunswick	95	63	78.8	3.20	
Carrollton	98	62	79.8	4.48	
Conception	91	60	77.4	3.55	
Cook Station	105	55	80.0	3.00	
Cowgill *[5]	98	58	79.9	2.94	
Darksville	100	64	80.8	2.50	
Downing	......	......	......	2.97	
East Lynne *[3]	......	64	75.2	6.58	
Edgehill *[5]	98	64	80.1	2.87	
Edwards	105	57	81.3	4.49	
Eldon	103	60	78.6	4.93	
Elmira	99	55	77.6	2.95	
Fairport	......	......	......	3.23	
Fayette	104	62	80.8	2.43	
Fulton	100	61	79.6	2.84	
Galena	......	......	......	4.12	
Gallatin *[1]	97	58	79.3	3.91	
Gayoso	100	62	82.4	0.90	
Glasgow	102	64	81.2	6.18	
Gorin	......	......	......	1.56	
Halfway	102	56	79.9	4.52	
Harrisonville	100	57	79.8	5.07	
Hazlehurst	......	......	......	1.82	
Hermann	......	......	......	2.26	
Houston	101	55	78.1	3.39	
Houstonia (near)	......	......	......	5.74	
Irena	......	......	......	2.81	
Ironton	103	55	78.3	4.85	
Jackson *[3]	99	67	78.8	1.60	
Missouri—Cont'd.	°	°	°	*Ins.*	*Ins.*
Jefferson City	102	61	81.0	2.66	
Kidder	98	58	78.2	4.62	
Koshkonong	102	62	81.2	3.90	
Lamar	101	60	81.4	4.81	
Lamonte	......	......	......	4.55	
Lebanon	101	61	80.5	2.94	
Lexington	101	57	80.0	3.51	
Liberty	100	52	78.5	1.61	
Louisiana	104	61	82.6	2.53	
McCune *[1]	102	66	82.7	3.13	
Macon	102	62	81.7	1.68	
Marblehill	104	58	79.4	2.26	
Marshall	100	59	79.8	5.36	
Maryville	100	56	79.4	5.52	
Mexico	103	61	82.3	2.09	
Miami *[5]	97	65	81.8	2.41	
Mineralspring	98	55	76.5	4.82	
Montreal	98	59	79.2	3.98	
Mount Vernon	103	60	81.8	5.89	
Neosho	98	57	77.7	3.50	
Nevada	......	......	......	5.53	
New Haven	102	62	81.9	2.37	
New Madrid	99	67	84.0	1.34	
New Palestine	100	61	79.7	6.54	
Oakfield	101	62	82.2	1.35	
Olden	100	58	77.5	4.52	
Oregon *a*	95	58	78.6	6.06	
Oregon *b*	99	60	80.6	5.61	
Palmyra *[5]	101	66	83.9	1.03	
Phillipsburg *[1]	102	64	80.3	3.38	
Pickering *[3]	96	52	71.0	0.16	
Pine Hill	......	......	......	4.44	
Poplarbluff	104	63	81.6	3.49	
Potosi	102	54	77.8	4.17	
Princeton	102	62	81.8	2.49	
Richmond	99	64	79.6	3.15	
Rockport	......	......	......	8.37	
Rolla	......	......	......	3.61	
St. Charles	102	63	81.6	0.88	
Sarcoxie *[3]	......	62	79.5	4.80	
Seymour	100	55	78.0	4.15	
Shelbina	......	......	......	1.20	
Sikeston	105	63	82.4	0.34	
Steffenville	101	62	82.6	0.91	
Sublett	98	59	80.6	2.16	
Trenton	96	60	80.0	2.24	
Unionville	103	60	82.6	2.65	
Vichy	99	55	80.0	3.40	
Warrensburg	102	60	81.2	4.45	
Warrenton	102	61	81.6	1.95	
Wheatland	......	......	......	4.59	
Willowsprings	100	59	78.0	4.57	
Windsor	99	59	78.4	4.87	
Wylie	101	59	79.6	4.05	
Zeitonia	104	62	81.0	2.76	
Montana.					
Billings	104	42	69.6	......	
Boulder	93	30	59.6	0.54	
Bozeman	89	37	61.0	0.68	
Butte	89	42	59.2	0.48	
Canyon Ferry	99	40	66.0	1.42	
Chester	98	62	69.1	1.70	
Chinook	104	32	67.0	1.02	
Columbia Falls	85	31	57.2	2.11	
Corvallis	101	32	61.2	1.30	
Crow Agency	99	43	67.6	1.58	
Dell	93	34	59.1	1.10	
Dillon	94	34	59.8	1.32	
Fort Benton	104	40	65.4	0.55	
Fort Logan	90	31	58.0	0.49	
Glasgow	104	41	69.0	0.93	
Glendive	111	46	72.2	2.40	
Glenwood	96	35	60.2	1.16	
Greatfalls	96	38	65.2	1.53	
Kipp	93	27	56.4	1.99	
Lewistown	95	30	61.2	4.20	
Livingston	90	36	64.7	0.05	
Martinsdale	95	32	62.3	0.81	
Marysville	90	37	59.0	0.80	
Ovando	91	25	54.6	1.80	
Parrot [1]	96	42	64.0	0.26	
Plains	87	37	61.3	2.27	
Poplar	105	39	71.0	3.13	
Redlodge	96	29	61.0	0.00	
Ridge	104	42	70.6	1.02	
Ridgelawn	109	36	69.8	2.31	
St. Pauls	98	36	64.6	1.32	
Troy	89	34	59.4	1.23	
Twin Bridges	94	32	60.5	......	
Utica	100	38	62.8	2.20	
Wibaux	100	33	64.6	4.77	
Yale	102	39	64.7	0.83	
Nebraska.					
Agate	......	......	......	0.46	
Agee	......	......	......	2.69	
Albion	96	54	76.3	3.74	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Nebraska—Cont'd.	°	°	°	*Ins.*	*Ins.*
Alliance	......	......	......	1.05	
Alma	104	54	80.5	1.22	
Ansley	99	49	76.6	5.24	
Arapaho *[1]	100	60	79.6	0.85	
Arborville *[1]	100	60	76.2	6.33	
Arcadia	98	52	76.8	4.85	
Arlington	......	......	......	5.70	
Ashland *a*	96	60	79.0	6.07	
Ashland *b*	......	......	......	6.11	
Ashton	......	......	......	3.48	
Auburn	96	51	77.5	3.05	
Aurora *[1]	96	62	77.4	6.26	
Bartley	......	......	......	0.34	
Beatrice	101	55	79.0	3.58	
Beaver	109	54	82.0	0.67	
Bellevue	......	......	......	4.63	
Benedict	......	......	......	8.57	
Benkleman	......	......	......	2.31	
Blair	95	50	77.3	5.97	
Bluehill	......	......	......	2.48	
Bradshaw	......	......	......	8.53	
Brokenbow *[1]	96	52	75.2	4.00	
Burchard	......	......	......	2.92	
Burwell	......	......	......	3.87	
Callaway	98	39	70.7	4.70	
Camp Clarke	102	38	75.6	0.84	
Central City	......	......	......	3.96	
Chester	......	......	......	2.13	
Cody	......	......	......	4.50	
Columbus	95	57	77.2	7.40	
Crete	96	59	77.6	8.07	
Curtis	97	56	81.2	5.79	
David City	94	57	77.3	9.60	
Dawson	105	57	79.6	4.19	
Eden	......	......	......	7.56	
Edgar *a*	......	......	......	2.66	
Ericson	......	......	......	4.81	
Ewing	......	......	......	4.34	
Fairbury	104	56	79.6	4.25	
Fairmont	96	56	77.8	6.84	
Fort Robinson	103	36	75.1	1.95	
Franklin	104	56	80.2	1.62	
Fremont	94	59	76.9	6.37	
Geneva	98	50	77.7	3.35	
Genoa	96	55	77.4	6.94	
Gering	98	40	73.9	0.67	
Gordon	......	......	......	2.20	
Gosper	......	......	......	2.50	
Gothenburg	99	49	77.2	5.53	
Grand Island *a*	......	......	......	3.80	
Grand Island *b*	102	53	78.8	4.23	
Greeley	......	......	......	1.25	
Haigler	......	......	......	4.54	
Hartington	97	55	76.4	2.53	
Harvard	93	55	76.6	5.93	
Hastings *[1]	96	60	77.9	2.29	
Hayes Center	......	......	......	3.96	
Hay Springs	99	45	74.8	1.22	
Hebron	101	58	79.6	1.64	
Hickman	......	......	......	6.70	
Holdrege *[1]	98	55	79.7	2.62	
Hooper *[1]	93	62	77.4	5.87	
Imperial	102	45	76.4	3.47	
Johnstown	......	......	......	2.50	
Kearney	......	......	......	2.94	
Kennedy	100	47	73.6	4.38	
Kimball	96	43	72.6	0.27	
Kirkwood *[1]	95[d]	55[c]	76.0[c]	3.17	
Laclede	96	57	77.2	5.21	
Lexington	99	50	76.2	2.51	
Lincoln	98	54	79.0	7.89	
Loup	......	......	......	4.11	
Lynch	101	52	76.2	3.39	
Lyons	......	......	......	4.62	
McCook *[1]	98	58	79.1	1.26	
McCool	......	......	......	3.57	
Madison	96	55	76.7	3.83	
Madrid *[5]	103	50	78.3	2.03	
Marquette	......	......	......	4.08	
Mason City	......	......	......	3.96	
Merriman	......	......	......	2.22	
Minden *a*	102	54	78.6	2.89	
Minden *b*	......	......	......	2.63	
Monroe	......	......	......	6.58	
Nebraska City *b*	......	......	......	10.14	
Nebraska City *c*	101[j]	53[j]	78.9[j]	6.73	
Nemaha *[1]	103	62	79.7	14.73	
Nesbit	98	46	73.6	3.08	
Norfolk	98	54	77.5	3.90	
North Loup	96	52	76.6	4.00	
Oakdale	99	52	77.4	3.61	
Odell	102	60	85.1	2.53	
O'Neill	99	52	75.4	3.07	
Ord	......	......	......	5.74	
Osceola	......	......	......	5.34	
Ough	......	......	......	3.34	
Palmer *[5]	100	60	84.2	3.90	
Palmyra *[1]	94	60	76.4	7.72	
Plattsmouth *b*	......	......	......	4.96	
Pleasanthill	......	......	......	6.77	
Ravenna *a*	102	54	76.9	1.74	
Ravenna *b*	......	......	......	1.74	
Redcloud *b* *[1]	102	60	85.0	1.34	
Republican *[1]	102	60	79.3	0.52	
Rulo	......	......	......	5.99	
St. Libory	......	......	......	3.38	
St. Paul	99	54	77.2	4.01	
Salem *[1]	96	64	81.0	4.81	
Santee	100	56	79.4	1.72	
Sargent	......	......	......	4.38	
Schuyler	......	......	......	6.41	
Seneca *[1]	94	56	71.4	0.23	
Seward	100	64	81.6	6.59	
Smithfield	......	......	......	2.68	
Spragg	......	......	......	3.20	
Springview	96	50	74.6	4.63	
Stanton *[1]	97	60	75.6	5.35	
State Farm	97	58	78.7	7.96	
Strang	......	......	......	3.50	
Stratton	......	......	......	1.59	
Superior *[5]	104	64	83.0	2.70	
Syracuse	......	......	......	5.97	
Tablerock	......	......	......	7.16	
Tecumseh *b*	100	57	80.6	5.00	
Tecumseh *c*	......	......	......	5.27	
Tekamah	96	52	77.6	6.27	
Turlington	95	59	77.2	6.28	
Valparaiso	......	......	......	8.71	
Wakefield	97	53	76.9	5.21	
Wallace	......	......	......	1.24	
Wauneta	......	......	......	2.39	
Weeping Water *[1]	93	55	72.7	7.99	
Wellfleet	......	......	......	4.60	
Westpoint	98	55	79.9	4.35	
Wilber *[1]	102	60	77.3	6.23	
Willard	......	......	......	2.50	
Wilsonville *[1]	106	56	81.4	0.70	
Winnebago	......	......	......	4.45	
Wisner	......	......	......	6.61	
Wymore	......	......	......	1.87	
York	......	......	......	7.19	
Nevada.					
Austin	86	42	62.6	T.	
Battle Mountain *[1]	94	46	72.8	0.00	
Belmont	87	34	62.2	0.01	
Beowawe *[1]	88	55	68.5	0.00	
Candelaria	95	44	68.1	0.00	
Carlin *[1]	100	52	65.7	0.00	
Carson City	91	35	62.1	0.18	
Clover Valley	......	......	......	0.21	
Cranes Ranch	......	......	......	T.	
Duck Valley	92	34	61.0	0.16	
Elko *[1]	99	49	64.7	0.00	
Elko (near)	95	33	61.8	0.00	
Ely	92	37	62.4	0.05	
Empire Ranch	98	30	59.6	T.	
Fenelon *[1]	92	40	64.8	0.00	
Golconda *[1]	98	58	72.0	0.03	
Halleck *[1]	98	44	64.3	0.00	
Hawthorne	95	48	69.6	0.00	
Hot Springs *[1]	100	60	75.0	0.00	
Humboldt	90	50	68.9	0.00	
Lee	......	......	......	T.	
Lewers Ranch	91	38	63.8	0.15	
Los Vegas	110	53	78.9	0.10	
Lovelocks *[1]	93	58	69.5	0.00	
Mill City *[1]	92	58	70.4	0.00	
Monitor Mill	92	32	62.5	0.00	
Palisade *[1]	98	55	68.5	0.00	
Palmetto	94	32	61.4	0.25	
Sodaville	98	43	72.2	0.00	
Tecoma *[1]	100	55	71.6	T.	
Toano *[1]	98	52	67.8	0.00	
Tybo	92	45	68.6	0.00	
Verdi *[1]	88	44	62.6	0.22	
Wadsworth *[1]	92	50	71.2	0.00	
Wells *[1]	92	40	64.4	T.	
New Hampshire.					
Alstead	......	......	......	5.32	
Berlin Mills	93	34	65.3	2.74	
Bethlehem	89	41	65.0	3.65	
Brookline *[1]	96	54	69.8	3.32	
Claremont	96	41	69.3	2.86	
Concord	94	41	68.4	2.76	
Durham	98	46	70.1	2.49	
Grafton	94	36	65.9	2.91	
Hanover	95	41	67.8	2.89	
Keene	94	39	68.0	3.42	
Littleton	89	40	64.5	3.74	
Nashua	97	43	70.4	4.11	
Newton	94	42	67.8	2.98	
North Conway	97	43	67.6	2.60	
New Hampshire—Cont'd	°	°	°	*Ins.*	*Ins.*
Peterboro	93	39	67.4	4.35	
Plymouth	96	42	68.0	2.42	
Sanbornton	94	43	66.9	2.57	
Stratford	90	38	65.8	3.49	
Warner	......	......	......	4.80	
New Jersey.					
Asbury Park	99	58	76.4	0.90	
Bayonne	99[e]	56[e]	77.2[e]	2.43	
Belvidere	96	52	75.7	1.92	
Bergen Point	95	56	75.4	2.52	
Beverly	101	51	77.7	3.44	
Billingsport *[1]	97	60	76.9	4.54	
Bridgeton	102	55	79.4	4.18	
Camden	98	55	76.6	2.96	
Cape May C. H.	103	50	79.6	1.48	
Charlotteburg	97	41	72.2	1.64	
Chester	91	52	72.8	3.16	
Clayton	102	50	77.8	2.97	
College Farm	98	55	77.0	2.24	
Deckertown	98	48	74.7	1.98	
Dover	98	47	74.9	2.48	
Egg Harbor City	101	48	77.2	4.35	
Elizabeth	99	55	76.6	2.97	
Englewood	97	58	74.7	4.56	
Flemington	100	53	77.4	2.72	
Freehold	96	54	74.9	2.41	
Friesburg	103	51	78.1	2.97	
Hammonton	......	......	......	2.83	
Hanover	95	52	74.0	4.11	
Hightstown	96	54	76.2	2.35	
Imlaystown	96	55	76.8	2.43	
Lambertville	100	53	77.6	2.88	
Layton	99	43	74.0	0.89	
Lebanon	......	......	......	2.31	
Moorestown	97	54	76.9	3.53	
Mount Pleasant	......	......	......	1.55	
Newark	97	54	75.7	2.88	
New Brunswick	100	55	78.2	2.39	
Newton	99	45	73.6	1.62	
Ocean City	98	50	74.8	2.65	
Oceanic	96	58	74.6	4.15	
Paterson	100	55	76.4	3.44	
Perth Amboy	100	57	77.2	2.10	
Plainfield	98	52	76.0	2.69	
Rancocas	......	......	......	3.45	
Rivervale	99	46	73.4	3.97	
Rocktown	......	......	......	1.74	
Roseland	97	46	73.9	2.82	
Salem	104	53	79.4	2.64	
Somerville	102	53	77.7	3.55	
South Orange	95	56	75.0	2.78	
Toms River	101	46	75.7	2.63	
Trenton	95	57	77.0	3.77	
Tuckerton	102	49	77.6	1.97	
Vineland	104	52	78.5	2.02	
Woodbine	......	......	......	1.73	
New Mexico.					
Albert	101	54	76.0	2.12	
Albuquerque	94	53	75.0	0.13	
Alma	93	44	70.4	1.53	
Aztec	95	38	69.2	0.14	
Bellranch	......	......	......	4.23	
Bernalillo	95	46	73.4	0.34	
Bluewater	96	40	67.4	1.05	
Cambray	......	......	......	0.62	
Deming	......	......	......	0.08	
East Lasvegas	84	49	67.8	2.23	
Engle	99	54	76.4	1.92	
Espanola	96	42	71.5	0.48	
Folsom	93	41	68.6	1.14	
Fort Bayard	97	52	72.9	1.85	
Fort Stanton	94	43	67.9	2.18	
Fort Union	......	......	......	1.73	
Fort Wingate	96	42	69.0	0.83	
Gage	......	......	......	0.75	
Galisteo	96	48	71.0	2.33	
Gallinas Spring	97	41	72.4	3.07	
Hillsboro	94	54	74.0	0.03	
Las Vegas Hotsprings	89[e]	49	68.0[d]	3.15	
Lordsburg	......	......	......	1.25	
Los Lunas	102	46	73.8	0.20	
Lower Penasco	93	51	72.6	1.95	
Lyons Ranch	102	46	76.4	1.10	
Mesilla Park	102	47	78.2	0.90	
Raton	92	46	68.6	1.40	
Roswell	101	49	77.1	1.35	
Socorro	99	52	77.2	0.48	
Springer	94	39	68.8	5.35	
Strauss	......	......	......	1.20	
Whiteoaks	93	51	72.2	1.10	
Winsors Ranch	86	30	58.8	1.30	
Woodbury	98	50	73.4	0.56	
New York.					
Adams	......	......	......	1.23	
Addison	99	42	73.6	2.39	
Akron	......	......	......	2.48	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
New York—Cont'd.	°	°	°	*Ins.*	*Ins.*
Alden	94	53	75.0	2.48	
Alfred				4.04	
Angelica	94	38	70.4	2.59	
Appleton	96	50	72.6	2.02	
Arcade	89	43	70.4	3.95	
Atlanta	95	42	70.8	2.41	
Auburn	97	50	74.8	1.80	
Avon	97	50	74.2	2.52	
Axton	87	36	64.6	6.00	
Baldwinsville	94	52	73.6	3.35	
Bedford *a*	98	54	75.4	2.66	
Beedes	87	40	64.4	4.81	
Big Sandy *[10]	90	52	70.3		
Bisby Lodge				7.41	
Blue Mountain Lake				3.65	
Bolivar	96	33	69.4	5.14	
Bouckville	89	46	69.8	3.32	
Boyds Corners				1.54	
Brockport	95	58	73.2	2.31	
Caldwell	98	47	69.2	5.83	
Canajoharie	93	42	69.7	2.79	
Canton	94	39	68.6	4.30	
Carmel	94	48	74.9	2.30	
Carvers Falls	93	44	68.4	6.28	
Catskill	108	50	74.6	1.51	
Cedarhill	101	44	73.6	2.46	
Chenango Forks				1.80	
Cooperstown	89	44	68.8	4.62	
Cortland	96	46	72.9	1.92	
Cutchogue	96	52	73.9	6.15	
Dekalb Junction				3.29	
Easton				5.08	
Elba	94	52	73.6	2.39	
Elmira	98	47	75.0	1.25	
Fleming	93	51	72.3	2.88	
Franklinville	91	40	69.8	3.68	
Fulton				2.46	
Gabriels	85	37	64.1	7.47	
Glens Falls	95	48	70.9	6.03	
Gloversville	95	42	68.6	3.23	
Greenwich	93c	47c	70.8c	4.55	
Haskinville				1.71	
Hemlock	92	54	73.4	1.99	
Honeymead Brook	96	48	71.4	2.15	
Honnedaga Lake				5.54	
Hoosick Falls				6.25	
Humphrey	91	42	70.2	4.91	
Indian Lake	89	39	66.4	4.27	
Ithaca	95	46	72.3	2.93	
Jamestown	90	46	72.2	2.02	
Jay	91	40	67.2	5.78	
Keene Valley	91	39	67.1	4.74	
King Ferry				1.86	
King Station				4.38	
Liberty	93	46	70.1	3.43	
Littlefalls	91	46	71.0	3.88	
Lockport	93	53	73.4	3.35	
Lowville	93	44	69.8	1.50	
Lyndonville				1.64	
Lyons	94	55	73.8	2.49	
Mayle				2.81	
Middletown	96	51	73.4	1.88	
Mohonk Lake	92	51	72.2	5.23	
Moira	90	40	68.1	3.99	
Mount Hope	101	48	73.6	3.75	
Newark Valley				2.73	
New Lisbon	92	38	68.0	3.50	
North Hammond	94	50	71.5	2.97	
North Lake	89	42	66.7	5.28	
Number Four	88	40	66.2	2.38	
Ogdensburg	89	52	70.4	2.91	
Old Chatham				2.32	
Oneonta	95	44	72.6	6.24	
Oxford	96	42	71.0	2.89	
Palermo	92	48	70.8	3.03	
Penn Yan	99	51	74.9	2.36	
Perry City	98	42	72.2	2.48	
Phœnix				2.85	
Plattsburg Barracks	94	48	69.4	3.24	
Port Byron	94	51	71.8	3.23	
Port Jervis	99	48	74.4	3.51	
Red Hook				3.37	
Richmondville	86	47	67.7	3.39	
Ridgeway	95	53	73.2	1.95	
Rome	92	49	69.6	6.62	
Romulus	97	53	74.4	4.11	
Rose				2.92	
St. Johnsville	95	43	71.4	3.01	
Salisbury Mills				2.41	
Saranac Lake	88	37	64.4	5.57	
Saratoga Springs	94	48	70.6	4.00	
Schenevus				1.56	
Scottsville				2.68	
Setauket	95	55	73.4	5.90	
Shortsville	96	50	73.6	2.05	
Skaneateles				1.85	
New York—Cont'd.	°	°	°	*In*	*Ins.*
South Canisteo	93	40	70.2	3.37	
Southeast Reservoir				2.33	
South Kortright	93	35	68.2	3.18	
Straits Corners	101	39	72.6	1.52	
Ticonderoga	98	46	71.2	5.39	
Volusia	90	47	72.0	1.54	
Walton	96	39	70.4	3.12	
Wappingers Falls	98	51	74.7	3.05	
Warwick				6.17	
Watertown	93	49	72.1	1.10	
Waverly	101	39	73.7	1.64	
Wedgwood	97	50	74.0	1.71	
West Berne	100	40	72.0	2.88	
West Chazy [1]	93	45	67.6		
Westfield *a*	100	51	74.0	1.39	
Westfield *b*	90	51	73.3	1.17	
Westfield *c*	89	53	74.4	1.18	
Williamson				2.91	
Windham	93	37	66.7	3.50	
North Carolina.					
Abshers	100	56	79.2	4.14	
Asheville				2.54	
Biltmore	92	56	74.8	0.52	
Bryson City				4.48	
Chapelhill	104	62	83.6	3.61	
Cherryville	101	61	81.2	2.61	
Currituck				1.88	
Edenton	99	63	83.8	3.63	
Fairbluff				2.98	
Fayetteville	102	62	83.5	1.26	
Goldsboro	99	64	82.3	5.14	
Greensboro	98	65	80.9	1.69	
Henderson	99	64	81.2	3.53	
Hendersonville	94	55	75.4	1.53	
Henrietta	101	62	81.5	1.45	
Highlands	85	50	68.1	1.95	
Horse Cove	89	61	74.4	3.36	
Kinston	105	60	84.2	2.35	
Linville	85	48	67.6	3.70	
Littleton	102	63	82.8	1.81	
Louisburg	100	64	82.4	1.22	
Lumberton	100	64	83.8	1.50	
Marion	103	60	80.1	2.70	
Marshall	95	54	76.5	2.69	
Mocksville	99	60	80.4	2.07	
Moncure	99	63	81.6	3.64	
Monroe	100	56	79.8	3.50	
Mountairy	98	58	77.6	2.50	
Murphy				2.78	
Newbern	99	61	82.8	5.40	
Oakridge	101	60	81.0	1.60	
Patterson *[1]	96	59	78.3	1.22	
Pittsboro	102	60	81.2	4.99	
Rockingham	103	62	83.2	1.16	
Roxboro	99	63	81.8	0.81	
Salem	101	61	81.4	2.78	
Salisbury	102	60	82.6	1.79	
Saxon	103	60	81.4	0.91	
Selma	105	60	83.4	1.80	
Settle	101	59	80.0	3.95	
Sloan	102	59	81.0	7.26b	
Soapstone Mount	101	57	79.2	3.32	
Southern Pines *a*				3.88	
Southern Pines *b*	100	67	83.0	5.24	
Southport	100	64	83.3	2.83	
Springhope *[1]	96	70	81.5	3.59	
Tarboro	105	59	84.2	6.72	
Washington	105	64	85.2	6.24	
Waynesville	92	52	71.4	2.25	
Weldon *a*	99	64	82.4	2.65	
Weldon *b*				3.02	
North Dakota.					
Amenia	95c	43c	72.9c	5.55	
Ashley	110	43	70.4	3.50	
Berlin	100	41	70.5	7.06	
Buxton	91	44	70.4	5.52	
Churchs Ferry	92	40	67.9	9.33	
Coalharbor	106	43	70.4	4.11	
Devils Lake	92	48	70.4	7.56	
Dickinson	110	39	71.2	3.15	
Donnybrook				2.45	
Dunseith	91	36	66.7	3.85	
Ellendale	103	50	73.8	6.76	
Falconer	106	41	71.9	4.40	
Fargo	93	42	71.8	8.28	
Forman	103	48	74.3	9.48	
Fort Yates	110	48	73.2	6.26	
Fullerton	102	45	72.6	5.50	
Gallatin	96	36	70.4	2.82	
Glenullin	114	48	72.1	4.72	
Grafton	92	43	70.0	2.97	
Hamilton	95	46	69.8	4.25	
Hannaford	95	43	70.6	3.28	
Jamestown	99	36	70.8	8.84	
Langdon	89	34	66.8	3.30	
Larimore	92	40	69.0	7.45	
North Dakota—Cont'd.	°	°	°	*Ins.*	*Ins.*
Lisbon	95	47	72.6	6.91	
McKinney	94	33	66.2	2.34	
Mayville	93			5.35	
Medora	114	42	71.4	4.36	
Melville	98	43	70.3	3.92	
Milton	87	37	66.3	4.05	
Minnewaukon	94	40	69.9	4.15	
Minot	100	39	69.6	3.01	
Minto	95	41	70.8	3.68	
Napoleon	108	44	70.6	6.35	
New England	108	39	69.8		
Oakdale	100	44	68.2		
Pembina	93	38	68.6	3.92	
Portal	94	38	65.4	2.85	
Power	97	40	71.6	6.04	
St. John	99	40	65.5	4.66	
Sheyenne	95	39	70.9	3.01	
Steele	104	41	72.1	2.17	
Towner	95	33	67.0	4.55	
University	92	44	70.6	6.98	
Wahpeton	96	44	73.7	8.41	
Willow City	95	37	68.8	2.57	
Ohio.					
Akron	95	51	75.2	3.79	
Annapolis	101c	41c	77.8c		
Ashland	95	50	75.8	5.85	
Ashtabula	90	51	72.8	1.85	
Atwater				2.41	
Bangorville	99	56	76.2	5.02	
Bellefontaine	93	61	75.6	3.43	
Bement				2.57	
Benton Ridge	98	54	75.6	4.69	
Bethany	101	57	78.8	4.02	
Bigprairie	94	50	74.4	8.30	
Binola				3.64	
Bladensburg *f*	98	49	75.6	3.10	
Bloomingburg	96	56	77.2	2.53	
Bowling Green	96	51	75.4	4.24	
Bucyrus	100	51	76.4	4.63	
Cambridge	98	45	73.8	3.08	
Camp Dennison	96	59	79.2	4.18	
Canal Dover	95	49	75.1	2.99	
Canton	95	50	75.3	3.61	
Cardington	98	51	76.2	3.78	
Cedarville				4.05	
Celina	96	54	76.6	4.18	
Chillicothe	100	55	79.2	4.52	
Circleville	96	55	77.2	3.30	
Clarksville	95	63	77.8	5.17	
Cleveland *a*	91	55	74.4	2.34	
Cleveland *b*	92	56	75.4	1.72	
Clifton	97	55	77.2	3.56	
Coalton	101	50	77.4	3.90	
Colebrook	92	44	71.6	1.63	
Dayton *a*				5.13	
Dayton *b*	99	57	79.2	4.56	
Defiance	94	51	74.6	2.58	
Delaware	98	52	76.4	5.69	
Demos	96	56	76.2	3.78	
Elyria	98	52	75.2	3.43	
Findlay	99	51	78.2	6.27	
Frankfort	97	58	76.3	4.45	
Garrettsville	95	43	73.3	2.19	
Granville	97	50	76.0	3.86	
Gratiot	94	58	74.9	3.92	
Green	97	57	78.8	1.38	
Greenfield	95	61	78.3	3.80	
Greenhill	94	44	73.0	3.65	
Greenville	89	60	75.3	3.13	
Hanging Rock	99	55	78.8	3.49	
Hedges	103	52	78.0	2.85	
Hillhouse	92	47	71.5	2.72	
Hillsboro	96	54	76.4	3.64	
Hiram	93	50	74.1		
Hudson	97	47	74.1	2.05	
Jacksonboro	100	61	80.4	2.90	
Kenton	99	59	78.5	3.41	
Killbuck	94	51	74.9	5.95	
Lancaster	96	54	76.3	2.48	
Leipsic	95	52	75.0	2.45	
Logan		54		1.72	
Lowell	102	54	77.8	3.38	
McConnelsville	100	52	77.4	3.34	
Mansfield				4.65	
Marietta	94	57	77.8	8.70	
Marion	101	55	76.7	4.52	
Medina	97	48	75.0	3.21	
Milfordton	95	51	75.0	4.76	
Milligan	100	47	75.4	3.06	
Mill'port	95	45	73.4	3.81	
Montpelier	94	55	75.8	2.16	
Napoleon	93	54	76.4	2.80	
Neapolis				3.88	
New Alexandria	96	52	75.8	4.48	
New Berlin	98	48	75.8	3.40	
New Bremen	95	60	77.3	4.09	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
New Holland	99	55	78.4	5.09	
New Paris	92	59	75.7	3.38	
New Richmond	98	60	79.7	5.03	
New Waterford	97	48	74.2	3.83	
North Lewisburg	98	53	76.8	4.20	
North Royalton	97	52	75.8	3.71	
Norwalk	99	50	75.6	6.94	
Oberlin	96[d]	47[e]	74.6[e]	2.98	
Ohio State University	96	54	77.2	3.28	
Orangeville	95	43	72.8	1.15	
Ottawa	98	55	77.4	3.16	
Pataskala	98	50	77.1	3.05	
Philo	99	52	76.9	2.23	
Plattsburg	94	57	76.5	2.65	
Pomeroy	100	53	78.4	4.73	
Portsmouth *a*	......	......	......	3.44	
Portsmouth *b*	97	58	79.5	3.34	
Pulse	......	......	......	3.25	
Richwood	100	51	78.8	3.38	
Ridgeville Corners	......	......	......	1.41	
Ripley	98	58	78.8	1.80	
Rittman	93	49	73.6	4.27	
Rockyridge	97	54	76.3	2.42	
Rosewood	96	58	76.4	4.91	
Shenandoah	96	50	74.6	6.67	
Sidney	100	58	78.8	3.98	
Sinking Spring	99	55	78.0	3.70	
Somerset	99	57	78.4	2.64	
Springboro	......	......	......	5.05	
Strongsville	......	......	......	2.49	
Thurman	103	55	78.4	3.01	
Tiffin	93	57	76.0	4.39	
Upper Sandusky	95	55	76.2	5.06	
Urbana	92	57	75.6	3.33	
Vanwert	97	58	76.6	5.74	
Vermillion	95	40	74.6	4.14	
Vickery	98	53	76.4	2.72	
Walnut	......	......	......	4.25	
Warren	95	46	74.2	2.80	
Warsaw	96	47	74.8	8.71	
Wauseon	98	53	77.4	2.97	
Waverly	101	56	79.8	5.22	
Waynesville	94[f]	56[f]	76.6[f]	6.56	
Wellington	96	50	74.9	3.81	
Westerville	92	56	75.8	5.20	
Willoughby	......	......	......	1.43	
Wooster	94	49	73.9	5.97	
Youngstown	......	......	......	2.25	
Zanesville	......	......	......	3.49	
Oklahoma.					
Arapaho	107	61	81.8	1.42	
Beaver	106	......	......	0.65	
Burnett	102	56	81.4	3.36	
Clifton	103	58	82.4	1.70	
Fort Reno	99	57	79.7	2.53	
Fort Sill	103	62	80.8	1.70	
Guthrie	101	64	82.4	0.92	
Hennessey	104	60	83.0	1.15	
Jefferson	106	58	82.8	0.54	
Jenkins	102	57	81.7	0.33	
Kingfisher	102	62	82.1	1.54	
Newkirk *	104	61	84.0	2.50	
Norman	100	60	79.4	1.51	
Osage	106	58	84.0	2.59	
Prudence	109	62	83.4	1.39	
Sac and Fox Agency	104	60	79.8	5.70	
Stillwater	101	60	83.2	1.39	
Taloga	105	62	85.0	0.56	
Waukomis	104	59	82.3	0.96	
Woodward	104	60	83.2	0.70	
Oregon.					
Albany *b*	......	......	......	0.54	
Alpha	82	37	61.1	0.21	
Arlington	99	57	72.4	......	
Ashland *b*	88	39	64.7	0.36	
Aurora *[1]	82	50	64.6	0.00	
Aurora (near)	81	40	61.2	0.51	
Bandon	72	39	59.0	0.18	
Bay City	71	41	57.8	2.59	
Blalock	96	49	71.0	0.38	
Brownsville *[1]	88	52	65.5	0.10	
Bullrun	72	44	58.9	2.32	
Burns	90	30	59.1	0.17	
Cascade Locks	82	45	64.8	1.32	
Comstock *[1]	83	49	62.8	0.00	
Coquille	......	......	......	0.03	
Corvallis	82	37	61.4	0.20	
Dayville	90	38	63.3	0.92	
Ella	......	......	......	0.37	
Fairview	86	46	65.3	0.35	
Falls City	83	38	60.4	0.28	
Gardiner	76	50	61.9	0.51	
Glenora	86	39	59.8	1.33	
Government Camp	77	31	50.7	3.31	
Grants Pass	91	41	64.5	0.31	
Happy Valley	88	28	57.2	0.73	

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Oregon—Cont'd.	°	°	°	*Ins.*	*Ins.*
Hare	73	46	58.5	0.08	
Hood River (near)	90	41	63.6	0.29	
Jacksonville	89	44	67.8	0.76	
Joseph	88	30	56.6	1.79	
Junction City *[1]	84	48	64.0	0.07	
Kerby	91	38	64.3	0.21	
Lafayette *[1]	85	55	67.2	0.65	
Lagrande	86	39	63.0	1.15	
Lonerock	86	28	74.2	1.05	
Merlin *[1]	91	53	67.6	0.00	
Monmouth *a* *[1]	82	54	64.4	0.32	
Monroe	84	41	63.1	0.08	
Mount Angel	83	47	64.0	0.23	
Nehalem	......	......	......	2.96	
Newberg	85	37	62.3	0.10	
Newbridge	95	32	61.6	0.95	
Newport	71	46	58.7	0.69	
Pendleton	97	42	69.0	1.01	
Placer	......	......	......	0.32	
Prineville	91	30	59.8	0.45	
Riddles *[1]	86	50	65.7	T.	
Riverside	95	31	64.3	0.50	
Salem *b*	92	40	67.2	0.00	
Sheridan *[1]	80	53	63.3	0.67	
Silverlake	96	27	57.8	0.45	
Silverton *[1]	84	58	67.7	0.42	
Siskiyou *[1]	82	44	66.0	0.00	
Sparta	89	31	59.4	0.33	
Springfield *[1]	81	51	64.4	0.24	
Stafford	89	43	63.4	1.03	
The Dalles	88	45	66.6	0.55	
Toledo	76	41	57.0	0.27	
Umatilla	......	......	......	0.43	
Vale	94	36	64.0	0.59	
Vernonia	85	37	60.4	0.85	
Westfork *[1]	90	48	65.7	0.25	
Weston	92	36	62.9	1.45	
Williams	86	39	61.2	0.22	
Pennsylvania.					
Altoona	97	46	74.2	3.90	
Athens	103	41	75.1	1.48	
Beaver Dam	......	......	......	4.02	
Brookville	......	......	......	3.45	
Browers Lock	......	......	......	4.15	
Butler	95	45	73.9	4.20	
Cassandra	91	44	71.4	4.41	
Centerhall	94	45	74.0	2.56	
Chambersburg	99	50	76.9	4.60	
Coatesville	101	53	78.4	5.60	
Confluence	94	50	74.8	2.38	
Coopersburg	93	54	74.8	2.33	
Davis Island Dam	......	......	......	1.31	
Derry Station	99	47	78.2	1.85	
Driftwood	......	......	......	3.61	
Duncannon	......	......	......	3.96	
Dushore	96	38	69.6	2.25	
East Bloomsburg	......	......	......	3.23	
East Mauch Chunk	99	49	75.2	2.90	
Easton	93	53	75.4	3.55	
Emporium	93	44	71.8	3.50	
Ephrata	100	51	77.4	3.23	
Everett	94	52	75.4	5.50	
Forks of Neshaminy *[1]	94[c]	62[c]	75.2[c]	2.60	
Franklin	94	44	73.3	2.18	
Freeport	......	......	......	2.27	
Girardville	......	......	......	4.77	
Greensboro	96	53	76.2	2.86	
Hamburg	......	......	......	4.30	
Hawthorn	97	46	75.2	5.53	
Hews Island Dam	......	......	......	0.97	
Huntingdon *a*	102	45	76.1	2.61	
Huntingdon *b*	......	......	......	1.78	
Irwin	......	......	......	1.61	
Johnstown	98	52	76.6	4.41	
Karthaus	......	......	......	0.72	
Keating	......	......	......	3.28	
Kennett Square	100	53	77.3	4.59	
Lawrenceville	98	38[c]	71.8[c]	2.05	
Lebanon	103	49	76.9	4.26	
Leroy	95	50	73.1	2.14	
Lewisburg	99	47	75.8	4.08	
Lockhaven *a*	102	47	77.0	4.37	
Lockhaven *b*	......	......	......	4.45	
Lock No. 4	......	......	......	1.83	
Lycippus	93	51	75.8	3.51	
Mifflin	......	......	......	2.25	
Oil City	......	......	......	2.65	
Parker	......	......	......	3.30	
Philadelphia	101	59	78.8	3.79	
Quakertown	97	51	75.5	3.93	
Reading[2]	......	......	75.3	3.01	
Renovo *a*	......	......	......	4.65	
Renovo *b*	98	45	75.2	4.68	
Saegerstown	98	41	72.8	1.74	
St. Marys	93	40	71.6	4.78	
Scranton	97	44	72.8	1.27	

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Pennsylvania—Cont'd.	°	°	°	*Ins.*	*Ins.*
Selinsgrove	100	48	76.5	2.38	
Shawmont	......	......	......	4.26	
Sinnamahoning	......	......	......	0.42	
Smethport	95	38	70.4	2.90	
Somerset	94	46	71.8	4.80	
South Eaton	97	46	73.8	1.93	
State College	95	48	74.6	2.95	
Swarthmore	97	55	77.0	3.79	
Swiftwater	90	48	70.0	2.31	
Towanda	99	42	73.7	3.44	
Troutrun	......	......	......	1.91	
Uniontown	93	54	75.2	5.20	
Warren	90	44	70.4	3.63	
Wellsboro	96	41	71.7	3.67	
Westchester	97	57	76.6	5.78	
West Newton	......	......	......	1.90	
Wilkesbarre	99	45	74.8	3.16	
Williamsport	98	49	75.2	2.89	
York	102	48	77.4	4.09	
Rhode Island.					
Bristol	88	54	71.0	2.07	
Kingston	97	46	70.4	2.17	
Pawtucket	97	51	74.6	2.35	
Providence *a*	99	53	74.8	3.18	
Providence *c*	96	50	72.4	3.27	
South Carolina.					
Allendale	97	62	82.6	0.28	
Batesburg	105	65	84.3	0.84	
Beaufort	102	69	84.2	3.35	
Blackville	104	65	84.2	2.21	
Camden	......	......	......	2.31	
Cheraw *a*	103	64	83.6	0.63	
Cheraw *b*	......	......	......	0.27	
Clemson College	102	64	81.7	3.43	
Conway	......	......	......	3.13	
Darlington	......	......	......	2.53	
Edisto	......	......	......	0.56	
Effingham	......	......	......	1.48	
Florence	100	67	84.4	2.17	
Gaffney	......	......	......	1.75	
Georgetown	99	67	83.1	3.05	
Gillisonville	105	61	84.5	2.69	
Greenville	97	62	80.3	1.39	
Greenwood	104	67	83.6	1.17	
Holland	99	60	79.4	1.90	
Kingstree *a*	98	65	81.9	1.46	
Kingstree *b*	......	......	......	1.86	
Liberty	102	63	81.7	2.55	
Little Mountain	105	67	84.6	3.43	
Longshore	106	64	83.5	2.00	
Pinopolis *[1]	97	69	81.5	2.34	
St. George	102	66	84.1	0.85	
St. Matthews	102	68	84.9	1.32	
St. Stephens	......	......	......	3.83	
Santuck	105	63	82.8	2.27	
Shaws Fork	104	62	83.1	1.11	
Smiths Mills	......	......	......	2.34	
Societyhill	99	66	83.0	4.11	
Spartanburg	99	64	81.6	1.72	
Statesburg	105	67	84.9	1.83	
Summerville	97	65	81.5	3.29	
Temperance	105	62	84.4	3.26	
Trenton	101[d]	71[d]	84.3[d]	2.38	
Trial	101	62	80.3	3.65	
Walhalla	97	63	79.5	2.13	
Winnsboro	97	67	80.2	0.77	
Winthrop College	100	62	83.0	1.59	
Yemassee	103	67	85.3	5.55	
Yorkville	103	70	85.2	1.63	
South Dakota.					
Aberdeen	111	52	75.1	5.45	
Academy	102	55	77.4	4.36	
Alexandria	101	53	79.4	4.46	
Armour	95	52	77.5	2.44	
Ashcroft	114	40	70.8	2.21	
Bowdle	114	48	74.4	6.93	
Brookings	100	52	74.1	4.00	
Canton	97	52	77.0	1.53	
Centerville	......	......	......	3.98	
Chamberlain	105	56	78.1	4.22	
Clark	96	51	73.6	10.35	
Desmet	99	52	73.8	6.91	
Doland	102	51	74.8	7.08	
Elkpoint	100	54	78.0	5.00	
Farmingdale	......	......	......	2.19	
Faulkton	110	53	74.8	4.22	
Flandreau	96	49	73.8	2.57	
Forestburg	104	52	77.3	2.80	
Forest City	114	55	78.6	2.10	
Fort Meade	109	56	75.2	1.90	
Gannvalley	105	56	77.2	8.80	
Gary	102	60	80.4	3.35	
Greenwood	102	57	79.6	3.40	
Hartman	94	50	75.0	2.25	
Highmore	......	......	......	7.56	
Hitchcock	......	......	......	8.75	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
South Dakota—Cont'd.	°	°	°	*Ins.*	*Ins.*
Hotch City	108	50	76.7	4.09	
Hot Springs	104	48	74.1	2.00	
Howard	99	52	73.8	1.82	
Interior	110	48	77.0	0.90	
Ipswich	113	50	75.4	4.10	
Kimball	101	54[e]	75.4[d]	4.53	
Leola	108	49	72.3	4.50	
Leslie	115	45	76.8	0.95	
Mellette	106	51	75.1	4.18	
Menno	100	54	77.1	4.08	
Millbank	102	53	74.8	5.26	
Mitchell	101	51	75.9	3.51	
Oelrichs	107	46	75.5	1.55	
Parker	97	53	75.6	3.03	
Plankinton	98	53	75.8	4.35	
Redfield	105	52	74.9	9.32	
St. Lawrence	107	51	73.5	7.75	
Shiloh	113	47	76.2	2.79	
Silver City	......	......	......	2.13	
Sioux Falls	98	51	74.9	3.26	
Sisseton Agency	99	50	73.8	7.16	
Spearfish	104	48	70.8	2.36	
Tyndall	100	55	77.9	2.80	
Watertown	99	50	73.8	7.67	
Waubay	99	48	72.0	4.80	
Wentworth	96	51	74.9	2.83	
Wolsey	......	......	......	7.34	
Tennessee.					
Andersonville	96	61	78.3	1.27	
Arlington	96	63	80.5	0.69	
Ashwood	98	60	80.2	2.73	
Benton	97	63	79.8	1.75	
Bluff City	......	......	......	2.88	
Bolivar	97	63	81.2	0.82	
Bristol	94	59	75.8	2.98	
Brownsville	98	64	82.2	0.75	
Byrdstown	94	60	78.4	1.08	
Carthage	98	......	......	3.75	
Clarksville	96	63	81.0	0.53	
Clinton	......	......	......	0.74	
Covington	97	64	82.8	0.46	
Dickson	98	61	80.4	T.	
Dyersburg	98	64	82.6	0.87	
Elizabethton	98	58	76.4	4.40	
Elk Valley	95	59	76.8	2.10	
Erasmus	96	......	......	2.33	
Florence	94	53	79.6	1.70	
Franklin	96	62	80.0	1.40	
Greeneville	97	58	76.2	3.50	
Harriman	96	63	79.0	2.73	
Hohenwald	98	57[j]	78.0[e]	2.27	
Iron City	98	61	79.8	3.89	
Johnsonville	100	59	80.8	0.73	
Jonesboro *[1]	92	67	75.2	4.53	
Kingston	......	......	......	1.25	
Lewisburg	100	61	81.5	2.31	
Lynnville	99	62	81.0	3.59	
McKenzie	100	65	82.8	2.20	
McMinnville	97	61	79.2	0.90	
Maryville *[5]	100	63	80.8	2.62	
Milan	100	64	83.0	1.09	
Newport	94	61	78.6	2.15	
Nunnelly	97	59	79.8	2.32	
Oakhill	98	59	79.8	2.53	
Palmetto	101	62	80.7	2.72	
Peryear	......	......	......	0.50	
Pope	101	56	79.5	2.29	
Rogersville	92	61	76.2	1.72	
Rugby	96	56	76.9	1.71	
Savannah	100	64	81.6	3.95	
Sewanee	94	65	78.1	2.07	
Silverlake	88	52	70.6	4.70	
Springfield	101	60	81.6	0.40	
Tazewell	......	......	......	1.89	
Tellico Plains	100	60	80.0	2.77	
Tracy City	104	59	77.2	3.49	
Trenton	100	62	81.5	1.24	
Tullahoma	95	62	78.0	1.10	
Union City	96	66	82.2	1.05	
Wildersville	94	62	79.8	4.51	
Yukon	97	65	79.4	3.68	
Texas.					
Alpine	97	54	77.1	3.61	
Alvin	......	......	......	8.82	
Anna	97	63	79.4	2.66	
Anson	......	......	......	1.60	
Arthur	......	......	......	2.14	
Austin *a*	96	65	77.6	2.90	
Austin *b* *[5]	96	65	79.4	......	
Ballinger	101	67	80.2	4.12	
Beaumont	96	70	82.6	7.11	
Beeville	98	65	80.0	5.55	
Bigspring	......	......	......	1.65	
Blanco	97	64	80.2	5.80	
Boerne *[1]	94	70	79.1	2.46	
Brazoria	92	69	80.8	12.63	

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Texas—Cont'd	°	°	°	*Ins.*	*Ins.*
Brenham	93	70	81.2	4.61	
Brighton	99	72	83.0	4.57	
Brownwood	102	68	84.0	2.39	
Burnet *[1]	92	69	78.8	3.72	
Camp Eagle Pass	103	67	84.6	2.56	
Coleman	99	64	79.2	1.03	
Colorado	......	......	......	1.61	
Columbia	93	67	80.0	11.03	
Corsicana	98	67	82.4	6.41	
Cuero	98	70	83.0	3.67	
Dallas	97	65	80.4	2.46	
Danevang	96	68	82.0	9.14	
Dublin	97	64	80.2	1.26	
Duval	92	68	80.0	3.90	
Emory	98	62	81.6	3.68	
Estelle	98	65	81.6	4.57	
Forestburg	......	......	......	0.50	
Fort Brown	100	71	86.8	0.20	
Fort McIntosh	102	64	85.0	2.52	
Fort Ringgold	101	73	87.6	0.00	
Fort Stockton	......	......	......	2.65	
Fredericksburg *[1]	94[c]	71	79.4[c]	1.94	
Gainesville	99	68	80.6	2.02	
Grapevine	95	65	84.4	4.00	
Greenville	101	66	82.6	3.63	
Hale Center	94	61	75.7	3.14	
Hallettsville	95	71	81.8	3.69	
Haskell	......	......	......	2.47	
Hearne	98	67	82.4	6.55	
Henrietta	105	64	83.6	0.17	
Hewitt	......	......	......	1.60	
Hondo	......	......	......	2.60	
Houston	95	67	81.8	10.74	
Hulen	98[j]	69	83.0[e]	8.65	
Huntsville	94	67	81.8	8.87	
Ira	104	64	79.8	2.57	
Jacksonville	93	67	79.8	3.20	
Jasper	93	70	80.8	6.39	
Kaufman	98	66	82.8	......	
Kent	......	......	......	0.80	
Kerrville	97	64	82.8	2.68	
Lampasas	98	63	81.7	3.89	
Langtry	100	64	84.1	1.30	
Laureles Ranch	......	......	......	1.98	
Llano *[5]	97	72	81.6	4.10	
Longview	98	68	83.4	1.38	
Luling	97	68	82.1	2.91	
Mann	95	66	80.3	4.91	
Nacogdoches	103	66	83.8	3.28	
New Braunfels	96	68	81.8	2.73	
Panter	......	......	......	1.93	
Paris *a*	102	66	83.3	0.25	
Point Isabel *[1]	94	82	85.4	0.25	
Rhineland	103	65	83.8	1.58	
Rockisland	95	69	80.8	7.45	
Rockport *[1]	86	70	78.6	......	
Runge	97	69	82.4	3.48	
Sabine	96	71	83.8	7.67	
Saginaw *[1]	100	66	80.6	1.90	
San Antonio	98	70	83.8	4.19	
Sanderson	95	70	83.4	2.95	
San Marcos	97	65	82.2	2.41	
Santa Gertrudes Ranch	......	......	......	3.74	
Sherman	95	66	81.7	3.55	
Sugarland	94	66	80.6	9.45	
Sulphur Springs	97	67	81.6	1.29	
Temple *b*	96	......	......	4.29	
Trinity	96	67	81.8	3.04	
Tulia	......	......	......	2.30	
Turnersville	91	65	78.8	5.04	
Tyler	98[d]	70	82.8	3.74	
Valentine	102	64	81.3	1.10	
Victoria	......	......	......	5.64	
Waco	98	70	84.1	2.83	
Waxahachie	100	67	82.4	3.80	
Weatherford	99	65	81.8	1.74	
Wichita Falls	......	......	......	2.67	
Utah.					
Alpine	......	......	......	0.43	
Bluecreek *[1]	100	55	72.8	0.16	
Castledale	95	41	67.2	0.23	
Cisco	......	......	......	0.00	
Corinne	99	47	72.0	0.40	
Deseret	104	40	70.8	T.	
Farmington	......	......	......	0.22	
Fillmore	105	44	73.2	0.14	
Fishsprings	97	53	75.2	T.	
Fort Duchesne	101	37	68.7	0.40	
Frisco	97	48	70.6	0.05	
Giles	106	43	73.6	0.39	
Green River	104	43	72.2	0.66	
Grover	92	40	65.7	0.68	
Heber	96	30	62.2	0.31	
Henefer	91	26	59.4	0.56	
Hite	109	57	80.2	0.12	
Holyoake	105	42	75.4	0.02	

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Utah—Cont'd.	°	°	°	*Ins.*	*Ins.*
Huntsville	......	......	......	0.32	
Kanab	......	......	......	0.00	
Kelton *[1]	98	58	71.6	T.	
Levan	96	42	68.2	0.28	
Loa	91	26	57.1	0.74	
Logan	94	48	69.4	0.71	
Meadowville	......	......	......	0.30	
Millville	......	......	......	0.34	
Moab	104	46	74.2	0.37	
Mount Pleasant	98	41	67.0	0.16	
Ogden *[1]	97	57	74.7	0.28	
Park City	86	40	63.5	0.32	
Parowan	97	42	67.1	0.84	
Pinto	94	31	62.4	0.08	
Promontory	......	......	......	0.20	
Richfield	90	35	62.4	0.07	
St. George	106	44	74.8	0.51	
Scipio	98	35	68.2	0.37	
Snowville	94	40	66.0	0.12	
Soldier Summit	95	29	59.8	0.39	
Thistle	104	33	68.0	0.46	
Tooele	95	50	73.4	0.36	
Tropic	95	30	60.1	0.76	
Vernal	98	40	68.3	0.22	
Wellington	99	33	64.9	1.11	
Woodruff	94	31	59.0	0.26	
Vermont.					
Bennington	93	40	70.2	5.33	
Burlington	91	54	70.6	5.25	
Chelsea	86	43	64.4	4.55	
Cornwall	95	51	70.6	4.13	
Derby	87	42	63.6	3.18	
Enosburg Falls	91	41	65.6	3.41	
Hartland	91	39	65.8	3.61	
Jacksonville	89	37	65.4	4.58	
Manchester	90	42	67.3	5.43	
Norwich	93	40	66.2	2.93	
St. Johnsbury	88	41	65.0	3.42	
Vernon *[6]	94	54	71.1	3.70	
Wells	91	45	68.0	3.92	
Woodstock	90	41	66.7	3.80	
Virginia.					
Alexandria	102	59	81.4	3.49	
Ashland	105	60	82.3	1.21	
Barboursville	101	59	31.0	2.72	
Bedford	100[h]	61	80.5[c]	1.31	
Bigstone Gap	95	54	76.2	4.93	
Birdsnest *[1]	89	64	78.0	0.55	
Blacksburg	96	50	73.2	1.80	
Bon Air	102	63	81.9	1.15	
Buckingham	105	57	80.6	2.22	
Burkes Garden	89	47	69.4	2.86	
Callaville	98	63	81.2	1.13	
Christiansburg	......	......	......	2.38	
Clarksville	......	......	......	1.97	
Columbia	......	......	......	0.42	
Dale Enterprise	100	50	76.5	2.44	
Danville	......	......	......	0.13	
Doswell	101	51	80.2	0.92	
Farmville	103	62	81.7	1.82	
Fontella	105	62	83.0	1.27	
Fredericksburg	100	62	81.3	0.96	
Freeling	93	49	70.7	4.70	
Grahams Forge	94[d]	53[d]	73.9[d]	0.51	
Hampton	95	66	81.6	2.38	
Hot Springs	91	48	71.8	1.79	
Lexington	97	59	78.0	1.12	
Manassas	99	58	79.5	0.83	
Marion	98	52	75.0[c]	2.79	
Meadowdale	90	48	71.4	3.63	
Newport News	100	66	84.9	3.30	
Petersburg	102	62	81.4	2.42	
Radford	......	......	......	1.01	
Rockymount [d]	100	60	80.4	0.70	
Salem	100	60	80.0	0.33	
Speers Ferry	......	......	......	4.82	
Spottsville	100	58	80.8	4.10	
Stanardsville	101	57	80.4	0.97	
Staunton	102	56	79.2	2.34	
Stephens City	98	56	78.4	1.21	
Sunbeam	99	60	80.6	5.23	
Warrenton	98	57	78.2	1.24	
Warsaw	102	59	80.9	1.54	
Westpoint	97	61	79.4	1.80	
Woodstock	101	58	78.0	2.54	
Wytheville	97	58	76.1	1.86	
Washington.					
Ashford	......	......	......	3.04	
Bremerton	83	45	62.6	0.59	
Bridgeport [e]	100	41	68.8	T.	
Brinnon	78	48	61.8	0.55	
Cedar Lake	......	......	......	3.30	
Cedonia	85	32	59.0	1.05	
Centerville	90	29	62.2	0.59	
Chehalis	85	40	61.4	1.08	
Cheney	......	......	......	0.61	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
	°	°	°	Ins.	Ins.
Washington—Cont'd.					
Clearwater	75	42	60.4	4.05	
Cle Elum	86	38	60.0	0.80	
Colfax	93	37	63.6	1.39	
Colville	90	31	60.2	1.40	
Conconully	86	31	60.8	0.74	
Connell				0.11	
Coulee City	90	40	66.8	0.40	
Coupeville	77	43	59.4	1.90	
Crescent	92	33	64.0	1.52	
Dayton	103	37	70.0	0.70	
Ellensburg	85	36	61.6	0.23	
Ellensburg (near)	94	42	64.2	0.05	
Grandmound	81	44	62.9	0.69	
Granite Falls				3.33	
Hooper	108	40	68.1	0.67	
Issaquah				0.67	
Lacenter	84	43	62.4	1.25	
Lakeside	89	46	68.3	0.14	
Mayfield d	76	40	55.8	0.70	
Mottinger Ranch	96	48	70.2	0.53	
Mount Pleasant	83	45	62.9	1.92	
Moxee Valley	91	37	64.0	0.25	
New Whatcom	73	39	59.2	1.44	
Northport	90	34	60.0	1.57	
Olga	75	40	57.0	1.37	
Olympia	82	39	61.0	0.68	
Pasco	96	46	74.0	0.34	
Pinehill	93	40	67.4	0.12	
Port Townsend	76	44	59.3	1.02	
Pullman	88	37	60.5	1.04	
Renton				0.39	
Republic	90	28	60.4	0.65	
Ritzville				0.08	
Rosalia	90	32	60.9	0.82	
Sedro	80	37	59.4	2.64	
Shoalwater Bay *10	77	50	61.0		
Snohomish	79	46	60.7	1.22	
Southbend	84	44	60.9	2.84	
Sprague				0.11	
Sunnyside	91	41	66.2	0.26	
Twin	76	42	55.9	0.61	
Union	79	40	61.4	0.47	
Usk	96	34	60.6	1.50	
Vancouver	81	41	62.0	0.32	
Vashon	80	47	61.2	0.38	
Waterville	90	29	61.4	1.15	
Wenatchee (near)	89	38	63.6	0.30	
Westsound	82	37	60.5	0.73	
Wilbur	91	34	61.6	0.07	
West Virginia.					
Beckley	90	60	74.4	1.84	
Beverly	96	48	74.8	3.24	
Bluefield	93	53	73.0	3.52	
Buckhannon				2.57	
Burlington	100	50	76.0	1.03	
Central	98	50	76.0	2.09	
Chapel				4.41	
Charleston				3.34	
Clay				2.20	
Dayton	97	49	75.3	2.50	
Eastbank	94	60	76.5	1.47	
Elkhorn	94	55	74.0	3.42	
Fairmont				3.45	
Glenville	99	53	77.8	2.39	
Grafton	96	50	74.4	5.40	
Green Sulphur Springs	92	58	74.6	2.42	
Harpers Ferry				2.29	
Hinton a				3.24	
Hinton b	96	58	76.6		
Huntington	97	57	78.7	4.44	
Lewisburg	95	51	73.8	1.68	
Marlinton	89	49	72.0	2.42	
Martinsburg	100	54	77.6	2.60	
Morgantown	97	52	76.9	4.33	
New Martinsville	99	52	77.8	3.30	
Nuttallburg	94	53	74.0	2.80	
Oceana	97	54	76.2	5.56	
Parsons	91	50	72.9	3.10	
Philippi a	96	47	75.0	2.18	
Philippi b				3.18	
Point Pleasant	99	51	78.4	4.14	
Princeton	90	55	72.3	3.75	
Romney	98	51	77.0	1.07	
Rowlesburg				4.88	
Southside	97	57	78.6	2.56	
Spencer	99	50	77.6	2.88	
Terra Alta	89	60	74.0	7.20	
Uppertract	98	49	75.8	2.48	
Wellsburg	91	50	74.7	4.11	
Weston a				2.98	
Weston b	98	52	77.7		
Wheeling a				2.28	
Wheeling b	100	60	82.0	2.36	
Wisconsin.					
Amherst	94	56	74.0	4.45	
Ashland				4.80	

Stations	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
	°	°	°	Ins.	Ins.
Wisconsin—Cont'd.					
Barron	96	44	72.4	7.64	
Bayfield	94	56	73.5	5.80	
Beloit	94	56	75.5	5.11	
Brodhead	96	55	74.4	6.64	
Butternut	90	42	69.9	8.86	
Casco	95	53	73.6	2.37	
Citypoint	96	55	75.6	1.92	
Delavan	99	47	72.8	2.75	
Dodgeville	95	53	75.0	2.15	
Easton	94	46	75.0	3.93	
Eau Claire	97	52	76.5	3.37	
Florence	92	37	69.7	4.75	
Fond du Lac	94	54	74.6	5.49	
Grand River Locks				3.76	
Grantsburg	94	41	74.8	9.43	
Gratiot	94	63	78.6	8.85	
Hartford	98	55	76.2	3.29	
Hartland	94	56	75.5	3.62	
Harvey	95	55	75.8	3.92	
Hayward	94	45	75.2	8.36	
Heafford	92	45	71.8	4.42	
Hillsboro	95	46	74.8	2.41	
Knapp	95	41	73.2	4.34	
Koepenick *1	88	58	69.5	5.50	
Lancaster	93	55	75.0	4.01	
Madison	90	59	75.2	2.72	
Manitowoc	95	57	71.6	3.12	
Meadow Valley	97	43	74.2	2.39	
Medford	100	44	75.0	6.40	
Menasha				1.72	
Neillsville	94	47	74.3	4.19	
New London	97	54	75.2	2.98	
Oconto	97	52	74.4	3.89	
Osceola	95	46	73.8	7.96	
Pepin	97	48	77.6	2.45	
Pine River	95	50	74.0	4.13	
Portage	93	54	74.6	4.05	
Port Washington	97	51	72.4	3.51	
Prairie du Chien a	98	55	79.2	2.06	
Prairie du Chien b				2.08	
Prentice	91	49	71.8	7.28	
Racine	96	59	74.6	5.65	
Shawano	96	54	74.4	4.11	
Sheboygan	97	58	74.0	3.81	
Stevens Point	95e	48e	72.6e	1.32	
Sturgeon Bay Canal *10	92	59	68.9		
Two Rivers *10	94	60	72.4		
Valley Junction	93	42	74.2	3.89	
Viroqua	92	53	74.6	4.03	
Watertown	96	53	74.4	2.82	
Waukesha	92	56	74.1	5.67	
Waupaca				4.34	
Westfield	94	54	74.8	2.53	
Whitehall	92	49	74.5	3.16	
Wyoming.					
Alcova	103	42	71.6	T.	
Basin	103	42	73.8	0.15	
Bedford	91	30	59.2	0.57	
Bitter Creek	108	30	67.8	T.	
Buffalo	104	44	70.1	0.18	
Burlington	101	41	69.8	T.	
Carbon j	96	38	65.6	0.15	
Centennial	83	33	58.5	1.15	
Cody	101	40	69.7	0.32	
Daniel	81	23	52.6	1.05	
Dome Lake	77	34	52.6	0.60	
Embar c	96	40	69.0		
Evanston	87	32	58.5	0.52	
Fort Laramie	103	40	72.6	0.34	
Fort Washakie	95	38	65.2	0.70	
Fort Yellowstone	93	38	60.6	0.28	
Fourbear	86	33	59.5	0.74	
Hyattville	98	41	66.8	0.00	
Iron Mountain	91	34	65.2	0.50	
Laramie	89	36	62.4	0.61	
Lovell	99	38	67.6	0.05	
Lusk	95	40	69.4	0.06	
Parkman	102	42	67.3	0.42	
Pinebluff	99			0.27	
Rawlins	95	35	64.1	0.07	
Saratoga	95	38	64.6	0.64	
Sheridan	100	40	66.4	0.66	
South Pass City	84	38	61.6	0.42	
Thayne	86	31	58.0	0.69	
Thermopolis	104	42	70.6	0.20	
Wheatland	103	49	74.6	0.33	
Cuba.					
Aguacate	96	66	81.4	1.80	
Banaguises	94	69	79.9	4.86	
Batabano	94	70	82.0	6.53	
Camajuani	92	68	80.4	1.74	
Cardenas	95	70	83.3	1.82	
Cruces				7.14	
Gibara	95	70	82.1	1.55	
Guabairo				7.81	
Guanajay				6.74	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
	°	°	°	Ins.	Ins.
Cuba—Cont'd.					
Guantanamo	98	66	81.6	8.51	
Holguin	95	71	82.5	4.04	
Limonar	94			7.01	
Los Canos	98	66	81.8	2.45	
Magdalena				8.26	
Manzanillo	95	73	84.2	5.12	
Moron Trocha	96	69	83.0	1.55	
Nuevitas	90	72	81.0	0.29	
Pinar del Rio	93	69	82.2	4.73	
Sagua la Grande	93	68	82.2	1.27	
San Cayetano	93	69	80.6	3.10	
Santa Clara	96	68	82.4	0.84	
Santa Cruz del Sur	92	70	80.3	5.64	
Soledad	92	68	80.8	9.63	
Union de Reyes	91	74	82.8	4.52	
Porto Rico.					
Adjuntas	94	57	79.5	21.42	
Aguadilla	88	73	81.8	9.93	
Arecibo	89	68	78.4	4.25	
Bayamon	94	67	80.2	11.48	
Caguas	89	65	78.3	8.45	
Canovanas	90	73	81.1	11.01	
Cayey				8.71	
Cidra	88	62	76.5	11.03	
Coamo	94	68	81.2	9.18	
Comerio	91	67	78.6	8.57	
Corozal	94	64	78.8	5.10	
Fajardo	90	68	82.0	8.25	
Hacienda Coloso	96	66	80.2	11.01	
Hacienda Perla	89	73	80.4	12.83	
Humacao	96	73	83.4	8.74	
Isabela	90	65	79.4	5.63	
Juana Diaz	98	69	82.4	3.72	
La Isolina	89	67	78.0	5.85	
Lajas	94	66	79.7	2.20	
Manati	96	68	80.2	5.92	
Maunabo	90	76	82.6	8.05	
Mayaguez	92	68	80.3	14.02	
Morovis	92	68	78.3	7.86	
Ponce	93	66	80.4	2.76	
Port America	91	67	80.3	10.74	
Puerta de Tierra	92	74	82.2	6.92	
San German	91	69	80.5	3.13	
San Lorenzo	92	67	79.7	13.50	
Utuado				3.45	
Vieques	89	72	82.0	6.70	
Waikato	93	67	79.6	11.60	
Yanco	99	62	80.7	2.96	
Mexico.					
Ciudad P. Diaz	98	74	85.2	3.16	
Coatzacoalcos	88	65	79.0	9.19	
Leon de Aldamas	84	56	68.4	7.20	
Puebla *1	78	58	66.7	6.66	
Tampico	92	72	82.3	8.63	
Topolobampo *1	97	73	86.2	4.00	
Vera Cruz	92	72	81.2	8.76	
New Brunswick.					
St. John	87	49	63.1	2.09	
Nicaragua.					
Rivas	90	74	82.3	9.16	

Late reports for July, 1900.

Stations.	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Alabama.					
Evergreen	95	66	81.2	4.54	
Alaska.					
Circle City	88	45	64.9	1.66	
Coal Harbor	69	40	51.5	2.91	
Kenai	72	33	54.1	0.86	
Wood Island	68	45	55.0	6.64	
Arizona.					
Winslow	103	54	77.2	0.20	
California.					
Caliente *1	106	65	82.6	0.00	
Deweyville	108	54	83.7	T.	
Grass Valley				T.	
Kernville				0.00	
Kono Tayee	96	58	76.6	0.00	
Lankershim	107	51	80.6	T.	
Legrand	107	46	79.0	0.00	
Merced	107	50	79.3	T.	
Redding	104	60	82.0	T.	
San Miguel Island	74	48	60.9	0.00	
West Saticoy				0.00	
Colorado.					
Strickler Tunnel				3.50	T.
Georgia.					
White Oak		66		5.34	
Illinois.					
Bloomington	95	55	76.1	3.38a	
Iowa.					
Carroll	96	51	73.0	6.95	
Knoxville	96	53	75.0	4.75	
Pella				4.37	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Temperature. (Fahrenheit.) Minimum.	Temperature. (Fahrenheit.) Mean.	Precipitation. Rain and melted snow.	Precipitation. Total depth of snow.
	°	°	°	*Ins.*	*Ins.*
Kansas.					
Lebanon	103	.....	......	2.00	
Louisiana.					
Emilie	92	69	79.5	6.83	
Maryland.					
Wood-tock	99	54	78.1	3.94	
Montana.					
Poplar	......	....	......	0.46	
Nevada.					
Elko*[1]	103	50	69.7	0.00	
New Mexico.					
Los Lunas	102	50	80.1	T.	
Oregon.					
Placer	......	....	......	T.	
South Dakota.					
Mitchell	100	......	......	3.85	
Texas.					
Hulen	......	70	......	19.30	
Tulia	.....	......	......	4.40	
Wyoming.					
Bitter Creek	116	28	69.4	2.20	
Cuba.					
Banagiuses	91	67	79.0	7.98	
San Cayetano	.....	......	......	7.15	

EXPLANATION OF SIGNS.

* Extremes of temperature from observed readings of dry thermometer.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. ÷ 4.
[2] Mean of 8 a. m. + 8 p. m. ÷ 2.
[3] Mean of 7 a. m. + 7 p. m. ÷ 2.
[4] Mean of 6 a. m. + 6 p. m. ÷ 2.
[5] Mean of 7 a. m. + 2 p. m. ÷ 2.
[6] Mean of readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[9] Mean of sunrise and noon.
[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance "n" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

CORRECTIONS.

July, 1900, Colorado, Ruby, make total precipitation 0.20, instead of 2.00. Iowa, Fayette, make total precipitation 7.73, instead of 7.23. New Jersey, Beverly, make mean temperature 77.8, instead of 78.2. Wyoming, Daniel, make total precipitation 0.60, instead of 1.20.

TABLE III.—*Mean temperature for each hour of seventy-fifth meridian time, August, 1900.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't.	Mean.
Bismarck, N Dak....	67.1	66.1	65.3	64.0	62.8	62.0	61.4	62.8	65.6	69.3	72.8	76.3	78.5	80.5	82.3	83.5	83.4	82.9	80.7	78.9	75.2	72.3	70.4	68.8	72.2
Boston, Mass	67.5	66.7	66.1	65.5	65.1	65.6	67.5	69.8	71.6	73.1	74.0	75.2	75.5	75.7	75.1	74.8	74.4	74.1	72.2	71.5	70.5	69.4	68.7	68.3	70.8
Buffalo, N. Y..........	70.7	70.0	69.4	68.6	68.0	68.0	69.1	70.6	72.2	73.4	75.1	76.0	76.9	77.6	77.0	77.2	77.3	77.1	75.9	74.7	74.2	72.8	72.0	71.4	73.1
Cedar City, Utah....	66.8	66.0	65.2	64.3	63.4	62.9	62.4	61.6	62.0	65.5	69.1	72.4	74.3	75.8	76.6	77.7	77.9	78.6	78.3	77.1	75.2	70.9	68.6	66.9	70.0
Chicago, Ill..........	73.8	73.2	72.3	72.2	71.8	71.6	71.5	73.2	74.9	75.9	76.9	78.0	78.9	79.7	80.5	81.0	79.9	79.6	78.5	77.6	76.9	75.9	75.3	74.5	76.0
Cincinnati, Ohio....	75.8	74.9	73.9	73.3	72.4	71.8	71.8	73.9	76.9	79.6	82.2	84.2	85.7	87.0	87.6	87.7	87.5	86.3	84.8	83.5	81.2	80.0	78.2	77.1	79.9
Cleveland, Ohio	71.9	71.1	70.4	69.8	69.2	68.6	69.5	71.2	74.0	76.1	77.1	78.0	78.8	78.9	79.6	80.4	80.5	79.3	78.6	77.5	76.0	74.7	73.5	72.4	74.9
Detroit, Mich........	71.3	70.4	70.1	69.3	68.5	67.7	68.2	70.5	72.7	75.3	77.7	79.6	80.9	82.2	82.6	82.6	81.6	80.8	79.0	77.0	75.7	74.2	73.2	72.1	75.1
Dodge, Kans..........	74.0	72.4	71.2	70.5	69.4	68.6	67.7	68.8	72.7	76.9	80.8	83.6	86.3	88.6	89.9	90.9	91.6	90.7	89.3	85.8	81.4	79.2	77.5	75.8	79.3
Eastport, Me..........	57.9	57.3	57.2	56.8	56.0	56.5	57.6	59.4	61.7	63.9	64.9	66.2	67.0	67.5	67.1	66.3	65.2	64.0	62.2	61.3	60.4	59.8	58.9	58.3	61.4
Galveston, Tex.......	81.8	81.6	81.0	81.1	81.0	80.7	80.8	80.9	82.0	83.2	83.9	84.4	85.3	85.5	85.5	85.5	84.5	84.5	83.8	82.9	82.5	82.3	82.0	82.0	82.9
Havre, Mont..........	61.2	59.1	57.5	56.5	56.2	54.5	53.8	53.8	57.1	59.9	63.3	65.8	69.0	72.4	74.3	76.0	77.1	77.6	77.0	75.1	72.0	68.4	65.1	62.8	65.2
Independence, Cal..	73.8	71.2	69.5	67.7	66.2	65.2	64.0	63.3	60.9	62.9	66.6	71.6	75.0	78.1	80.6	82.1	83.4	84.0	84.4	84.3	82.3	79.3	76.9	75.4	73.7
Kalispell, Mont	55.4	54.0	52.4	51.3	49.4	48.2	47.4	47.2	47.4	50.3	54.2	58.4	61.9	64.2	66.4	67.5	69.0	68.9	68.9	68.3	66.3	63.7	59.8	57.1	58.2
Kansas City, Mo.....	76.9	76.1	75.3	74.1	73.4	72.7	72.0	72.7	75.6	78.8	81.2	83.5	84.9	86.1	87.1	88.1	87.9	87.6	87.0	85.3	82.5	80.9	79.4	78.0	80.3
Key West, Fla........	80.9	80.8	80.3	80.3	80.2	80.2	81.1	82.3	82.8	84.1	84.6	85.4	81.1	85.5	85.4	85.0	84.5	83.5	82.4	82.2	81.6	81.3	81.3	81.1	85.6
Marquette, Mich	65.9	65.6	65.4	65.3	64.9	64.7	64.6	66.9	68.0	69.5	71.9	73.0	73.6	74.0	74.4	74.5	73.8	73.1	71.8	69.4	69.0	68.4	67.2	66.6	69.2
Memphis, Tenn.......	78.3	76.9	75.8	75.0	74.1	73.7	73.9	76.2	78.5	81.5	83.5	85.5	86.8	87.8	88.3	88.7	88.5	87.8	86.4	85.2	83.4	81.7	80.3	79.3	81.5
Mt. Tamalpais, Cal..	62.3	62.1	61.6	61.1	60.0	60.3	59.8	59.9	60.1	60.2	60.3	61.8	63.1	64.3	66.8	68.5	68.2	68.2	66.5	65.6	64.4	62.3	61.2	61.5	62.9
New Orleans, La.....	77.9	77.6	77.4	77.2	77.0	77.1	77.8	79.3	81.9	83.7	84.8	85.3	86.4	86.4	85.7	85.5	84.5	83.3	82.4	81.6	80.3	79.4	78.8	78.3	81.2
New York, N. Y......	72.7	72.3	71.7	71.2	71.1	70.8	71.4	72.8	75.2	77.7	79.4	80.7	81.8	81.7	81.3	81.6	81.3	80.2	78.4	77.0	76.1	75.3	74.5	73.8	76.2
Philadelphia, Pa......	73.3	72.8	72.2	71.8	71.6	71.3	73.4	75.7	77.7	79.9	81.9	83.9	85.1	86.4	86.7	86.8	85.5	83.8	81.2	78.6	76.2	75.4	74.9	74.2	78.3
Pittsburg, Pa........	73.2	72.1	71.0	70.5	69.8	69.2	69.7	71.9	75.6	79.1	81.7	83.9	86.0	86.9	86.7	86.8	86.4	85.1	83.2	81.3	79.0	77.5	75.9	74.5	78.2
Portland, Oreg.......	62.5	61.2	59.9	58.7	57.3	56.2	55.4	55.3	54.4	55.2	57.6	59.5	62.3	64.1	66.0	67.7	69.2	70.2	70.9	70.5	70.2	68.8	66.2	64.4	62.6
St. Louis, Mo.........	79.3	78.6	77.9	77.1	76.4	76.1	75.8	77.1	78.9	82.3	85.1	87.2	88.9	89.9	90.9	91.5	91.1	90.5	88.8	86.4	84.5	82.9	81.6	80.5	83.3
St. Paul, Minn........	72.9	72.0	71.2	70.9	70.1	69.5	69.1	69.1	71.3	74.1	76.7	79.2	81.8	83.4	84.5	85.0	85.3	84.4	83.6	81.9	79.2	77.2	75.7	74.2	76.8
Salt Lake City, Utah.	70.5	69.7	68.7	67.8	66.8	65.7	65.1	64.4	65.5	69.3	73.2	76.7	79.4	80.6	82.4	83.3	83.9	84.1	83.2	82.2	79.5	76.3	73.6	71.3	74.3
San Diego, Cal........	64.5	64.2	63.9	63.9	63.9	63.7	63.5	63.2	63.1	63.9	65.3	66.5	68.0	68.4	68.6	68.7	68.8	68.6	68.0	67.5	66.4	65.4	64.9	64.6	65.7
San Francisco, Cal...	56.8	56.4	56.0	55.7	55.1	54.9	55.1	55.8	54.7	55.6	57.5	59.4	61.3	62.8	63.6	63.7	63.2	62.5	61.4	60.7	59.5	58.6	57.5	57.2	58.5
Santa Fe, N. Mex ...	64.2	63.8	62.4	60.7	60.0	59.2	57.5	57.8	63.3	67.3	69.7	72.0	74.1	76.0	77.5	78.2	78.4	77.7	76.2	74.3	71.1	68.3	66.4	65.4	68.4
Savannah, Ga.........	77.6	76.8	76.4	75.8	75.4	75.0	75.9	78.7	82.4	85.7	88.8	90.8	91.8	91.8	90.3	89.1	87.7	85.7	83.1	82.1	80.5	79.7	79.0	78.3	82.4
Washington, D. C....	73.3	72.7	72.3	71.6	70.9	70.3	71.9	75.9	79.2	81.8	83.7	85.9	87.1	88.0	88.2	88.1	87.8	86.5	83.4	80.0	77.9	76.2	74.8	73.7	79.2
West Indies.																									
Basseterre, St. Kitts.	79.7	79.1	79.0	78.8	79.0	79.9	81.4	81.9	83.5	84.5	85.3	85.2	84.9	84.3	83.1	82.6	81.4	80.9	80.8	80.5	80.3	80.2	80.1	79.8	81.5
Bridgetown, Bar.....	77.3	77.0	76.9	76.6	76.6	78.7	82.1	83.3	84.8	85.3	84.9	84.9	84.7	84.3	83.7	83.1	81.7	80.2	79.1	78.5	78.2	78.0	77.7	77.4	80.6
Cienfuegos, Cuba ...	75.9	75.0	74.7	74.4	74.1	74.1	75.9	79.5	82.8	85.5	87.6	89.2	90.3	89.5	88.2	84.9	82.6	81.7	80.9	79.7	78.8	78.0	77.0	76.4	80.7
Havana, Cuba........	78.0	77.0	76.4	76.0	75.6	75.3	75.8	78.9	82.2	84.8	85.6	85.5	85.5	85.0	85.0	84.1	83.9	82.9	81.6	80.8	80.5	80.0	79.3	78.5	80.8
Kingston, Jamaica..	74.8	74.2	73.9	73.7	73.2	73.0	75.3	79.8	83.7	86.4	87.3	87.6	87.3	85.8	85.4	85.1	84.2	82.5	80.5	79.0	77.5	76.4	75.8	75.0	79.9
Port of Spain, Trin..	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
P. Principe, Cuba ...	75.1	74.3	73.6	73.3	72.9	72.8	73.6	79.0	81.5	84.4	86.8	89.2	90.3	90.8	90.2	87.3	85.9	83.5	81.3	78.9	78.1	77.3	76.5	75.9	80.5
Roseau, Dominica ..	77.2	77.0	76.7	76.7	76.6	77.3	79.8	81.6	84.0	85.1	85.3	85.7	85.8	85.6	85.2	84.4	82.6	80.5	79.0	78.5	78.1	77.6	77.3	77.5	80.6
San Juan, P. R........	77.9	77.7	77.4	77.1	77.2	77.7	79.5	81.4	83.2	83.8	84.0	84.0	84.5	83.4	82.9	82.5	81.5	80.7	80.1	80.1	79.5	79.3	79.2	78.5	80.5
Santiago de Cuba...	76.4	75.9	75.5	75.2	74.7	74.7	77.7	80.4	84.8	87.8	89.8	90.2	89.5	88.5	87.1	85.1	83.5	82.2	80.4	79.7	78.7	78.2	77.7	77.4	81.2
Santo Domingo, S. D.	75.2	74.9	74.7	74.4	74.2	73.8	75.8	79.4	82.3	84.7	85.9	86.2	85.6	83.9	84.0	82.9	82.5	81.0	79.2	77.9	77.1	76.5	76.0	75.6	79.3
Willemstad, Curaçao	79.8	79.5	79.1	79.2	79.2	79.5	81.6	83.1	84.3	84.9	85.2	85.6	86.1	86.5	86.5	85.6	83.9	82.5	81.5	81.4	80.9	80.8	80.5	80.3	82.4

TABLE IV.—*Mean pressure for each hour of seventy-fifth meridian time, August, 1900.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't.	Mean.
Bismarck, N. Dak....	28.125	.120	.123	.123	.122	.125	.131	.132	.142	.143	.139	.136	.127	.116	.102	.091	.081	.097	.075	.075	.086	.100	.109	.118	.113
Boston, Mass.........	29.863	.862	.860	.861	.870	.879	.888	.892	.893	.892	.885	.879	.872	.866	.858	.854	.854	.855	.861	.869	.876	.877	.878	.878	.872
Buffalo, N. Y.........	29.214	.213	.212	.215	.220	.228	.237	.242	.246	.250	.248	.244	.235	.226	.216	.210	.202	.199	.200	.201	.213	.217	.220	.221	.222
Cedar City, Utah....	24.277	.279	.279	.278	.278	.277	.280	.285	.297	.307	.311	.311	.307	.299	.290	.279	.262	.252	.243	.238	.240	.248	.262	.271	.277
Chicago, Ill.	29.155	.152	.155	.152	.153	.150	.167	.175	.177	.186	.184	.173	.161	.160	.146	.138	.132	.129	.130	.181	.139	.146	.151	.157	.155
Cincinnati, Ohio	29.400	.399	.399	.403	.409	.421	.433	.439	.440	.442	.441	.434	.422	.409	.389	.374	.365	.364	.370	.374	.390	.400	.401	.403	.405
Cleveland, Ohio	29.233	.233	.235	.237	.247	.256	.263	.270	.271	.274	.271	.265	.257	.246	.233	.221	.216	.210	.214	.220	.231	.232	.234	.235	.242
Detroit, Mich.........	29.251	.249	.250	.250	.254	.265	.276	.284	.284	.285	.280	.274	.267	.253	.241	.227	.224	.217	.224	.232	.243	.246	.251	.255	.253
Dodge, Kans	27.371	.379	.379	.376	.375	.375	.381	.381	.387	.389	.388	.380	.366	.348	.330	.313	.299	.291	.290	.305	.321	.338	.353	.357	.352
Eastport, Me	29.902	.898	.896	.895	.902	.908	.914	.919	.919	.916	.910	.905	.899	.896	.892	.890	.891	.894	.902	.913	.915	.916	.916	.916	.904
Galveston, Tex.......	29.961	.955	.950	.946	.944	.948	.957	.963	.977	.985	.989	.988	.976	.966	.952	940	.932	.925	.925	.931	.940	.952	.959	.961	.955
Havre, Mont..........	27.273	.272	.274	.273	.275	.278	.282	.286	.295	.295	.293	.289	.280	.267	.260	.249	.238	.228	.222	.225	.230	.243	.256	.263	.264
Independence, Cal..	25 895	.902	.907	.909	.912	.915	.922	.931	.943	.958	.966	.964	.958	.947	.932	.915	.899	.882	.866	.855	.853	.856	.869	.881	.910
Kalispell, Mont	26 877	.876	.878	.879	.880	.883	.888	.893	.904	.910	.911	.908	.898	.886	.875	.865	.858	.853	.850	.849	.851	.856	.866	.869	.878
Kansas City, Mo.....	28.985	.981	.986	.990	.991	.998	.006	.016	.027	.029	.027	.019	.009	.998	.984	.969	.961	.954	.951	.950	.953	.966	.972	.978	.987
Key West, Fla.......	30.034	.025	.018	.015	.016	.022	.036	.045	.055	.061	.062	.056	.044	.032	.017	.005	.998	.996	.003	.020	.028	.036	.042	.040	.029
Marquette, Mich ...	29.195	.193	.191	.194	.199	.203	.209	.214	.212	.208	.207	.204	.190	.182	.175	.172	.172	.173	.179	.185	.194	.190	.197	.197	.193
Memphis, Tenn.......	29.636	.634	.632	.632	.639	.645	.658	.674	.682	.687	.691	.686	.669	.652	.637	.622	.613	.607	.604	.611	.623	.635	.638	.640	.643
Mt. Tamalpais, Cal .	27.508	.506	.503	.499	.493	.487	.488	.493	.504	.516	.526	.538	.545	.550	.547	.545	.539	.528	.515	.508	.495	.493	.496	.501	.514
New Orleans, La.....	29.994	.989	.987	.987	.993	.001	.015	.025	.028	.029	.028	.024	.014	.003	.988	.976	.970	.970	.973	.983	.991	.998	.002	.001	.999
New York, N. Y......	29.687	.683	.682	.682	.687	.694	.701	.707	.710	.710	.705	.697	.688	.683	.673	.665	.665	.666	.672	.681	.691	.695	.697	.700	.688
Philadelphia, Pa......	29 900	.900	.901	.905	.912	.918	.927	.933	.932	.932	.924	.915	.908	.893	.882	.874	.870	.877	.886	.898	.905	.910	.911	.910	.905
Pittsburg, Pa*........	29.121	.119	.118	.122	.128	.139	.150	.157	.153	.152	.147	.136	.123	.109	.093	.090	.087	.085	.089	.101	.109	.119	.122	.125	.120
Portland, Oreg......	29.869	.874	.878	.879	.881	.883	.883	.888	.896	.904	.908	.911	.908	.903	.894	.884	.873	.863	.852	.844	.841	.842	.852	.861	.878
St. Louis, Mo.........	29.417	.414	.415	.414	.420	.428	.445	.452	.454	.461	.460	.451	.437	.424	.405	.391	.377	.376	.379	.379	.393	.402	.410	.415	.418
St. Paul, Minn........	29.023	.024	.013	.019	.019	.021	.028	.034	.037	.038	.037	.036	.025	.017	.008	.998	.992	.990	.986	.992	.998	.008	.018	.018	.016
Salt Lake City, Utah.	25.550	.554	.555	.557	.560	.566	.574	.584	.590	.606	.608	.609	.604	.595	.581	.566	.550	.534	.525	.521	.518	.522	.534	.540	.563
San Diego, Cal.......	29.832	.832	.830	.827	.819	.815	.816	.823	.834	.844	.853	.861	.859	.857	.853	.845	.836	.826	.819	.813	.814	.816	.821	.827	.832
San Francisco, Cal...	29.805	.804	.803	.800	.795	.794	.793	.798	.807	.817	.826	.831	.835	.834	.837	.819	.812	.802	.792	.787	.782	.783	.789	.798	.806
Santa Fe, N. Mex ...	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Savannah, Ga.........	29.996	.991	.987	.988	.991	.003	.018	.030	.035	.038	.034	.023	.010	.995	.977	.966	.962	.965	.976	.986	.000	.006	.012	.010	.000
Washington, D. C....	29.911	.909	.910	.910	.915	.923	.932	.937	.939	.944	.943	.939	.933	.917	.904	.894	.886	.879	.883	.893	.902	.908	.912	.917	.914
West Indies.																									
Basseterre, St. Kitts.	29.952	.941	.934	.936	.943	.956	.968	.973	.984	.983	.975	.963	.950	.936	.926	.924	.929	.939	.953	.969	.978	.980	.975	.965	.955
Bridgetown, Bar....	29.909	.903	.902	.905	.909	.919	.929	.938	.939	.936	.926	.911	.899	.887	.878	.878	.884	.896	.910	.925	.932	.936	.932	.923	.913
Cienfuegos, Cuba ...	30.940	.930	.919	.917	.921	.930	.944	.951	.956	.956	.955	.946	.929	.910	.894	.891	.895	.904	.919	.935	.946	.953	.954	.949	.981
Havana, Cuba........	29.969	.958	.951	.949	.951	.960	.972	.981	.989	.994	.993	.987	.975	.962	.948	.938	.935	.937	.946	.955	.966	.974	.982	.977	.964
Kingston, Jamaica..	29.666	.652	.640	.635	.636	.640	.658	.665	.671	.669	.659	.645	.627	.613	.599	.593	.593	.602	.616	.633	.654	.668	.675	.673	.641
Port of Spain, Trin..	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
P. Principe, Cuba ...	29.653	.640	.633	.630	.634	.643	.656	.661	.669	.671	.665	.656	.640	.625	.611	.605	.613	.625	.637	.648	.658	.668	.668	.662	.645
Roseau, Dominica ..	29.927	.919	.915	.914	.920	.931	.939	.949	.952	.951	.945	.929	.916	.904	.897	.895	.903	.911	.922	.940	.947	.950	.945	.936	.927
San Juan, P. R......	29.911	.901	.896	.898	.905	.915	.923	.929	.934	.931	.926	.915	.902	.892	.886	.884	.889	.901	.914	.925	.935	.935	.931	.920	.912
Santiago de Cuba...	29.875	.866	.858	.857	.866	.874	.885	.888	.893	.890	.878	.866	.848	.836	.828	.831	.835	.843	.855	.874	.885	.892	.890	.886	.867
Santo Domingo, S. D.	29.954	.942	.934	.931	.937	.947	.959	.967	.974	.973	.965	.953	.938	.924	.914	.905	.908	.916	.931	.947	.959	.968	.967	.960	.945
Willemstad, Curaçao	29.825	.815	.806	.808	.816	.826	.840	.850	.852	.848	.834	.819	.789	.769	.745	.739	.745	.758	.783	.808	.831	.844	.845	.837	.810

* Record for 23 days.

TABLE V.—*Average wind movement for each hour of seventy-fifth meridian time, August, 1900.*

Stations	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	10.0	10.0	9.8	9.4	10.2	9.5	9.4	8.4	9.7	11.1	12.8	12.2	11.8	11.7	11.9	11.6	11.9	12.5	12.3	12.6	10.6	9.8	10.1	10.2	10.8
Albany, N. Y	4.1	4.0	3.7	3.8	3.7	4.4	4.8	6.0	7.4	7.4	7.5	7.8	7.8	8.5	8.5	8.7	8.5	8.0	6.5	5.9	5.5	4.8	4.9	4.8	6.1
Alpena, Mich	5.4	5.5	5.5	5.4	5.5	5.6	5.3	6.2	7.0	7.7	9.2	10.0	10.7	10.8	10.8	10.3	9.8	8.5	7.3	6.3	5.1	5.4	5.6	5.2	7.3
Amarillo, Tex	15.9	16.1	15.7	17.2	16.9	16.4	15.4	15.2	15.6	18.0	19.5	19.3	18.2	17.1	17.4	18.3	18.3	19.5	19.8	19.0	16.6	14.9	15.1	16.0	17.1
Atlanta, Ga	6.5	7.1	7.1	7.5	7.2	6.8	6.7	6.5	6.6	6.7	7.1	6.9	7.5	7.7	8.7	8.9	8.6	8.1	7.7	6.7	6.5	6.5	6.8	6.5	7.2
Atlantic City, N. J	7.8	7.4	6.9	7.2	7.3	6.9	6.8	7.8	8.0	8.3	8.9	8.7	9.1	10.2	9.6	9.5	9.4	9.0	8.8	8.4	8.1	8.2	8.0	7.6	8.2
Augusta, Ga	3.2	2.9	2.8	2.8	2.9	2.8	2.8	3.3	4.5	4.7	5.5	6.1	6.7	7.5	7.7	7.5	8.2	7.2	6.2	5.2	4.5	4.2	4.5	3.6	4.9
Baker City, Oreg	2.5	2.5	2.7	3.4	3.7	4.0	4.8	5.4	5.7	5.2	3.3	3.7	4.3	5.0	5.2	5.2	6.1	6.8	6.9	7.5	6.8	5.3	4.1	3.1	4.7
Baltimore, Md	3.0	3.2	3.4	3.1	3.0	2.9	3.0	3.7	4.1	4.8	5.0	5.5	5.7	5.6	6.4	6.7	6.1	6.7	5.0	3.8	3.4	3.3	3.5	3.5	4.3
Bismarck, N. Dak	8.4	8.6	7.3	7.5	6.7	6.0	6.6	7.5	7.0	7.7	8.8	9.6	10.5	11.3	11.3	11.7	12.3	11.8	12.0	10.0	9.0	9.3	8.7	9.0	9.1
Block Island, R. I	11.4	11.1	10.6	10.4	10.5	10.3	10.4	10.9	10.9	10.7	11.1	10.9	11.2	12.1	12.7	13.0	12.3	11.7	11.5	12.2	11.8	11.6	12.5	12.5	11.4
Boise, Idaho	4.1	3.6	3.0	2.8	2.7	2.7	2.3	2.6	2.5	2.3	3.0	4.0	5.6	6.4	6.8	7.5	7.1	6.5	6.5	6.0	4.8	4.3	3.3	3.6	4.3
Boston, Mass	7.5	7.2	7.3	7.3	7.9	7.1	7.1	7.4	7.9	8.4	9.3	9.1	9.5	10.0	9.9	9.4	8.9	8.4	7.6	7.5	8.2	8.0	7.7	7.4	8.2
Buffalo, N. Y	9.0	8.9	8.7	9.2	9.5	9.2	9.0	9.1	10.0	11.3	11.9	12.2	12.4	13.3	13.4	12.8	12.0	10.9	10.4	10.0	9.9	9.4	9.1	9.3	10.4
Cairo, Ill	5.1	4.5	4.7	4.4	4.5	4.4	4.2	4.3	5.2	5.6	6.5	6.3	7.1	7.2	7.8	8.0	8.3	7.1	6.3	5.5	4.4	4.0	4.2	4.9	5.6
Cape Henry, Va	9.6	9.5	9.3	8.6	8.3	8.4	8.8	9.5	10.1	10.1	10.0	9.4	9.6	9.4	9.3	9.6	9.1	8.5	7.7	7.6	7.9	8.5	8.5	9.5	9.0
Carson City, Nev	5.2	4.7	3.5	3.4	3.4	3.0	2.9	2.8	2.7	2.4	2.6	3.6	4.0	4.5	7.7	10.6	11.7	13.7	15.6	14.3	12.6	11.0	8.3	5.9	6.7
Cedar City, Utah	6.3	7.0	7.0	7.3	7.1	7.2	7.3	7.3	6.9	5.6	5.9	7.7	9.2	10.2	10.7	11.0	11.0	11.1	9.9	9.0	8.0	5.6	4.5	5.4	7.8
Charleston, S. C	8.1	8.0	7.3	6.5	6.8	6.5	6.8	7.6	7.7	7.5	8.1	9.8	11.1	12.7	13.1	12.9	12.4	11.5	10.0	8.8	8.4	8.8	8.5	8.1	9.0
Charlotte, N. C	4.5	4.7	4.0	4.0	4.0	4.0	4.0	4.7	5.1	5.6	5.9	5.4	5.1	5.8	6.4	6.1	6.4	5.3	4.5	5.2	5.0	5.0	4.5	4.4	5.0
Chattanooga, Tenn	4.4	4.5	3.8	4.0	3.5	3.3	3.4	3.8	4.5	5.6	6.2	6.4	7.7	8.4	8.7	9.0	9.2	7.6	7.5	5.9	5.2	4.3	4.2	4.0	5.6
Cheyenne, Wyo	6.5	6.4	6.4	6.1	6.6	6.4	6.3	6.3	6.8	7.8	8.3	8.7	9.5	9.6	11.1	11.0	12.0	12.4	12.5	10.6	9.4	7.9	8.1	6.7	8.5
Chicago, Ill	12.5	13.0	14.2	13.9	12.8	12.7	11.6	11.9	12.0	11.8	12.7	13.2	14.2	14.0	14.5	14.9	15.3	14.7	14.0	13.3	13.7	13.7	13.0	13.4	13.4
Cincinnati, Ohio	3.4	3.1	2.4	2.6	2.5	2.7	3.0	4.0	4.9	5.7	6.4	6.4	7.5	7.6	8.3	8.1	8.0	7.1	6.6	5.1	3.8	3.6	3.2	3.3	5.0
Cleveland, Ohio	9.8	10.2	10.4	10.0	10.1	10.4	10.3	10.1	10.1	10.3	11.6	11.8	12.7	12.1	11.7	12.0	11.4	10.4	9.6	8.7	8.8	8.7	8.5	9.5	10.4
Columbia, Mo	5.5	5.2	5.2	5.3	4.9	5.0	5.2	5.3	5.6	6.4	7.4	8.1	8.4	8.8	8.7	9.2	8.8	8.0	7.4	5.6	5.4	5.7	5.5	5.7	6.5
Columbus, Ohio	4.2	3.5	3.3	3.5	3.8	3.5	3.7	4.0	4.7	5.5	6.7	7.0	8.1	8.1	8.8	9.2	9.2	8.6	6.7	6.0	5.6	5.0	5.0	4.4	5.7
Concordia, Kans	9.0	9.2	8.6	8.4	8.0	7.2	7.4	7.6	8.9	10.1	10.9	11.1	11.7	11.6	12.1	12.7	12.4	12.2	11.3	9.6	7.9	7.7	8.7	8.9	9.7
Corpus Christi, Tex	13.3	11.8	10.1	8.1	6.4	5.5	5.6	5.1	5.6	7.4	8.4	9.4	12.3	13.2	14.7	15.9	16.2	17.0	18.2	17.7	16.7	16.3	15.3	13.8	11.8
Davenport, Iowa	4.4	3.9	4.3	4.6	4.0	4.0	4.5	5.6	5.8	6.2	6.6	7.8	7.8	8.1	8.2	8.2	7.6	7.3	6.0	4.3	4.1	4.3	4.5	4.5	5.7
Denver, Colo	7.6	7.5	7.1	7.1	7.9	7.0	6.8	6.9	5.8	5.2	5.0	5.2	6.3	7.1	8.2	8.9	10.1	11.6	10.9	10.6	10.0	9.5	9.3	8.1	7.9
Des Moines, Iowa	6.1	6.1	5.4	5.0	5.4	4.9	4.9	6.0	7.3	8.6	10.2	11.0	10.9	11.0	10.6	10.7	9.9	9.3	8.6	6.9	5.5	5.3	5.9	5.5	7.5
Detroit, Mich	6.5	6.7	6.6	5.7	5.5	5.7	5.6	6.2	7.3	8.3	8.4	8.7	9.0	9.5	10.3	10.0	9.3	8.9	8.6	6.7	6.8	6.7	6.6	6.5	7.5
Dodge, Kans	13.6	12.7	11.6	11.1	10.4	10.4	10.0	9.8	12.7	16.4	17.3	17.8	18.7	18.8	18.7	18.5	18.3	17.5	18.3	17.7	15.5	14.4	14.8	14.4	15.0
Dubuque, Iowa	3.7	2.9	3.5	3.5	3.6	3.4	4.1	4.6	6.1	7.2	7.4	7.7	7.7	8.3	8.2	8.0	7.4	6.5	5.0	4.1	3.0	3.0	3.4	3.7	5.2
Duluth, Minn	7.2	7.8	7.6	7.8	7.8	8.3	7.5	7.8	8.7	8.9	10.4	11.0	11.6	11.5	11.5	11.2	11.3	10.5	9.6	8.5	8.0	7.7	7.2	6.8	9.0
Eastport, Me	6.1	5.7	5.8	6.3	6.8	6.5	6.6	7.0	7.4	8.0	8.6	9.7	9.6	9.6	10.5	10.7	9.2	8.3	7.4	6.4	6.8	6.1	6.5	6.2	7.6
Elkins, W. Va	1.3	0.9	1.0	1.1	1.2	1.4	1.0	1.3	2.2	2.9	3.8	5.2	5.7	5.7	6.2	6.2	5.8	4.5	2.8	1.5	1.4	1.1	1.3	1.1	2.8
El Paso, Tex	8.5	8.2	8.3	8.4	8.5	7.4	7.4	8.0	6.7	6.6	7.2	7.3	7.7	8.4	8.3	8.3	9.2	9.3	10.6	10.5	10.2	9.2	8.1	8.4	8.4
Erie, Pa	7.1	7.3	6.8	6.8	7.5	7.8	7.7	7.1	7.9	9.4	10.0	10.4	10.0	9.7	9.3	9.3	8.6	7.4	6.0	5.5	5.7	6.4	6.6	6.8	7.8
Escanaba, Mich	5.1	5.2	5.2	5.3	5.4	5.8	6.4	6.2	6.2	6.4	7.7	8.7	9.5	10.2	10.7	10.6	10.1	9.7	8.1	8.1	8.1	6.9	6.6	5.9	7.4
Eureka, Cal	5.4	5.0	4.4	3.5	2.9	2.9	2.8	2.5	2.7	2.7	3.8	4.9	6.0	7.0	7.9	9.1	9.5	9.3	9.7	9.3	8.4	7.5	6.4	6.4	5.8
Evansville, Ind	4.1	3.7	3.6	3.9	3.9	4.0	4.2	4.1	5.0	5.9	6.5	6.9	7.1	7.5	8.0	7.8	7.6	7.7	6.0	5.5	4.3	4.4	3.6	3.8	5.4
Fort Smith, Ark	5.8	5.8	5.5	5.6	5.8	6.1	5.9	5.9	6.5	7.8	8.5	8.8	9.2	9.1	9.8	10.9	11.1	11.7	11.5	9.9	8.6	7.7	6.6	6.1	7.9
Fort Worth, Tex	11.6	11.0	10.2	9.8	9.4	9.2	8.4	7.8	9.5	11.6	12.3	12.4	12.9	13.3	13.6	13.9	14.1	13.7	14.0	11.3	10.7	11.7	11.4	11.6	11.5
Fresno, Cal	6.8	6.7	6.1	5.8	5.5	4.6	4.5	4.4	3.7	3.4	4.1	4.3	4.5	4.9	5.5	5.5	5.7	6.0	6.1	6.4	6.4	6.5	6.8	6.9	5.5
Galveston, Tex	7.5	7.5	7.5	7.3	7.1	6.6	6.9	7.2	7.1	7.6	8.1	7.6	7.8	8.5	8.4	8.3	8.0	7.6	6.9	6.9	7.2	8.0	7.7	7.6	7.5
Grand Haven, Mich	6.2	6.4	6.2	5.7	5.9	5.8	6.0	6.0	6.4	7.4	7.6	7.6	8.2	8.8	8.8	9.1	8.8	7.5	6.5	6.0	5.3	5.6	5.2	5.6	6.8
Grand Junction, Colo	3.7	3.7	3.8	4.2	4.1	4.5	4.7	4.5	4.9	6.1	6.8	6.2	6.0	6.5	7.2	7.3	6.8	7.3	7.6	7.1	5.8	5.4	5.0	4.2	5.6
Green Bay, Wis	4.6	4.5	4.1	4.1	4.6	4.8	5.0	5.4	6.2	6.8	7.5	8.5	9.0	8.9	9.0	9.9	9.5	9.3	8.0	5.8	5.2	4.9	4.6	4.7	6.5
Harrisburg, Pa	3.4	3.0	3.1	3.0	3.3	2.8	2.7	3.8	4.7	5.3	6.0	6.3	6.5	6.8	7.0	6.5	6.4	5.9	5.1	4.8	4.2	3.8	3.4	3.6	4.6
Hatteras, N. C	9.8	10.0	9.5	9.6	10.2	10.4	10.5	11.4	11.9	11.6	11.8	11.5	11.9	12.5	12.6	12.6	12.7	12.5	10.7	10.2	9.9	10.5	10.3	9.9	11.0
Havre, Mont	7.8	8.0	7.8	7.7	7.7	7.7	7.1	6.9	7.4	9.4	10.3	10.2	11.2	12.0	12.1	12.3	12.2	11.8	11.9	12.2	10.6	9.2	8.0	8.0	9.6
Helena, Mont	7.6	8.4	7.7	6.7	6.3	6.2	5.5	5.3	4.8	4.2	5.2	6.2	7.3	7.9	8.9	9.2	9.2	9.9	10.3	9.5	9.2	7.1	7.9	8.1	7.4
Huron, S. Dak	10.8	10.5	10.2	10.0	10.2	9.4	9.3	9.3	9.9	11.5	12.3	12.3	12.1	13.5	14.2	14.1	13.6	13.7	12.1	10.3	10.0	10.1	11.0	11.5	11.3
Independence, Cal	7.2	6.2	5.7	5.0	5.2	5.2	5.0	4.8	5.0	4.3	5.8	6.9	7.2	7.4	8.2	10.3	12.0	13.8	14.3	12.9	11.5	9.2	8.7	8.9	7.9
Indianapolis, Ind	5.7	4.9	5.0	5.2	4.7	5.4	5.8	5.9	7.1	8.3	8.8	9.0	10.1	10.5	11.5	11.6	11.2	10.5	8.7	6.6	6.3	5.8	5.5	5.3	7.5
Jacksonville, Fla	5.4	5.3	5.3	5.2	5.1	4.8	4.3	4.5	5.4	5.7	6.4	6.8	7.4	7.7	8.4	8.7	9.5	8.5	6.7	6.1	5.8	5.2	5.2	5.6	6.2
Jupiter, Fla	6.2	5.9	5.7	5.5	5.4	5.3	5.6	6.2	7.1	8.1	9.1	9.5	9.9	10.7	11.2	11.1	10.1	9.2	7.8	7.3	7.1	7.4	6.9	6.9	7.7
Kalispell, Mont	5.3	4.7	5.1	5.7	5.8	5.6	5.5	5.9	5.9	5.5	5.0	4.9	6.3	7.3	7.7	9.2	9.0	9.1	8.5	8.0	7.7	5.9	5.3	4.9	6.4
Kansas City, Mo	7.1	7.8	7.8	7.5	7.1	6.5	6.8	7.3	7.7	8.5	10.0	10.6	10.7	10.2	10.4	10.7	10.2	9.8	8.7	6.7	6.0	6.5	6.7	6.9	8.3
Keokuk, Iowa	5.1	4.7	5.4	5.0	4.7	5.1	5.7	5.6	5.9	6.5	7.2	7.1	7.8	8.2	8.7	8.8	8.4	8.6	7.1	5.4	4.8	5.6	5.2	4.7	6.3
Key West, Fla	7.4	6.6	6.3	6.5	6.3	6.6	6.3	7.2	8.6	8.5	9.1	9.3	10.2	10.0	9.9	10.2	9.8	9.2	9.0	8.4	8.3	8.5	8.5	8.1	8.3
Kittyhawk, N. C	9.5	9.5	9.3	9.9	9.5	8.9	10.8	11.4	12.4	12.4	12.6	11.9	12.1	12.0	12.2	11.7	11.2	10.1	9.5	9.9	9.9	10.4	9.8	9.0	10.7
Knoxville, Tenn	3.4	3.4	3.3	3.1	3.0	3.1	3.0	3.2	4.2	5.1	5.5	5.6	6.5	6.4	6.6	7.1	7.2	6.6	7.2	6.8	5.2	5.3	4.2	3.8	5.0
La Crosse, Wis	4.5	4.7	5.3	5.2	4.9	4.8	4.9	5.1	5.9	6.0	6.5	7.1	7.3	7.4	8.0	7.9	7.7	7.2	7.0	5.6	5.3	4.8	4.7	4.5	5.9
Lander, Wyo	3.5	3.3	2.6	2.3	2.0	2.0	2.1	1.9	1.7	1.9	2.9	3.3	4.0	5.2	6.4	8.1	8.3	8.6	9.3	8.1	6.4	4.9	4.4	4.5	4.5
Lexington, Ky	6.4	5.7	5.7	6.2	6.0	6.2	6.2	5.5	6.1	7.1	7.2	6.6	7.9	8.5	8.3	8.6	8.7	7.1	6.8	6.6	6.3	6.2	6.5	5.9	6.8
Little Rock, Ark	4.3	4.0	4.1	4.3	4.3	4.7	4.3	4.5	5.3	5.7	6.9	7.5	8.4	8.2	9.3	8.6	8.7	8.7	8.5	6.7	5.4	5.5	4.7	4.4	6.2
Los Angeles, Cal	2.6	2.5	2.4	2.5	2.5	2.3	2.5	2.3	2.5	2.9	3.4	3.5	4.5	5.2	6.2	7.6	8.8	9.1	9.0	8.6	7.8	6.5	4.6	3.3	4.7
Louisville, Ky	4.0	3.7	3.6	4.0	3.8	4.1	3.6	3.7	4.5	5.3	6.5	7.3	8.4	8.9	9.6	9.1	8.8	8.7	7.0	5.5	4.4	4.2	3.7	3.7	5.7
Lynchburg, Va	1.3	1.4	1.6	1.1	1.3	1.1	1.0	2.3	3.9	4.4	4.3	4.2	4.7	5.3	5.5	5.1	4.9	4.4	3.8	2.3	2.0	1.7	1.5	1.6	2.9
Macon, Ga	2.8	2.3	2.6	2.5	2.3	2.5	2.5	2.8	4.2	4.7	5.4	5.9	6.1	6.7	6.8	6.9	7.8	7.7	6.4	5.0	3.8	3.1	3.0	2.7	4.4
Marquette, Mich	7.3	7.3	7.4	7.5	7.2	8.2	7.6	7.5	8.0	7.9	8.0	8.6	9.7	10.0	10.3	9.9	8.7	7.7	6.6	6.5	6.6	6.7	7.9	8.0	8.0
Memphis, Tenn	7.3	6.8	6.3	6.3	6.4	6.4	6.5	6.2	6.9	7.3	7.8	8.4	9.4	10.4	10.3	10.0	9.8	9.7	9.7	7.5	6.8	6.9	6.8	7.4	7.8
Milwaukee, Wis	6.8	6.9	7.3	7.6	6.9	6.3	6.2	6.5	7.1	7.9	8.0	8.7	10.3	10.5	11.0	11.1	10.7	9.5	8.1	6.8	6.4	6.4	6.3	6.9	7.9
Mobile, Ala	3.9	3.9	3.9	3.9	3.6	4.1	3.9	4.1	5.0	5.5	5.5	6.6	7.3	7.4	8.3	9.4	9.5	8.9	8.0	6.6	5.2	4.6	4.5	3.9	5.7
Montgomery, Ala	3.6	3.5	3.3	3.2	3.1	3.0	3.0	3.4	4.0	4.7	5.2	5.3	6.3	6.5	6.9	7.5	7.2	6.9	6.0	5.4	4.7	4.0	3.4	3.5	4.7
Moorhead, Minn	8.5	8.4	8.1	8.5	8.0	7.9	7.3	7.6	8.2	8.2	7.6	8.1	9.0	10.6	10.8	10.5	10.3	9.7	9.4	7.7	7.0	7.9	8.6	8.3	8.6
Mount Tamalpais, Cal	25.3	23.7	22.1	21.6	21.2	20.8	21.0	19.9	18.1	16.0	14.0	12.5	11.1	9.4	8.5	9.3	10.0	12.4	16.8	20.5	23.5	25.7	27.7	26.5	18.2
Nantucket, Mass	6.5	6.9	7.2	6.8	6.6	7.0	8.0	9.5	9.6	10.0	10.3	11.2	10.2	10.4	10.4	9.9	9.3	8.7	7.4	7.3	7.1	6.7	6.7	6.9	8.4
Nashville, Tenn	2.4	2.3	2.4	2.2	2.2	2.2	2.4	3.0	4.5	5.4	6.1	6.7	7.4	8.0	7.9	7.3	7.5	7.9	7.3	5.6	3.6	3.5	2.8	2.5	4.7
Neah Bay, Wash	5.6	4.9	4.3	4.1	3.9	4.0	4.0	3.7	3.2	3.6	4.6	5.1	6.2	6.6	8.1	9.3	9.9	11.1	11.5	11.1	9.8	8.6	6.4	5.6	6.5
New Haven, Conn	5.3	5.1	5.0	4.8	4.9	4.3	4.5	6.2	7.0	8.2	9.0	9.5	10.4	10.7	10.8	11.1	9.9	8.2	6.8	6.7	6.2	5.5	5.4	5.2	7.1
New Orleans, La	5.0	5.0	4.7	4.5	4.6	4.5	4.7	5.0	6.2	7.0	7.6	7.8	8.4	8.4	8.8	8.5	8.4	8.5	7.5	6.5	5.7	5.6	5.2	4.9	6.4

TABLE V.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
New York, N. Y.	8.0	7.5	8.0	8.1	7.9	7.9	7.0	7.7	8.5	9.0	9.6	10.2	10.1	11.8	12.0	11.9	11.9	11.8	10.1	10.5	10.1	9.2	8.9	8.1	9.4
Norfolk, Va.	5.7	5.5	6.0	5.3	5.2	5.5	5.7	7.0	7.6	8.1	8.4	8.3	8.4	8.0	8.0	8.6	8.4	7.3	7.0	6.4	6.8	5.9	5.7	6.1	6.9
Northfield, Vt.	5.0	4.8	4.7	4.5	4.5	4.2	3.8	4.9	6.5	7.6	9.6	9.3	10.0	10.3	10.1	10.0	9.5	8.2	6.1	5.2	5.8	5.7	5.2	5.0	6.7
North Platte, Nebr.	11.2	10.6	9.6	8.8	8.2	7.1	6.2	6.0	7.0	9.0	10.4	10.4	10.6	11.2	11.7	12.4	12.3	12.2	11.8	12.4	10.2	10.0	12.1	11.6	10.1
Oklahoma, Okla.	9.1	9.1	8.9	8.7	8.8	8.1	8.0	9.1	10.3	12.1	12.9	13.5	13.5	13.9	14.1	14.7	14.0	13.8	13.2	11.7	9.5	9.4	9.9	9.6	11.1
Omaha, Nebr.	7.1	6.9	6.5	6.3	6.5	6.0	5.8	6.4	7.6	8.8	9.4	9.5	9.5	9.9	9.6	9.6	9.1	8.4	7.1	6.7	6.1	6.2	6.4	6.8	7.6
Oswego, N. Y.	6.5	7.1	7.2	7.3	7.5	6.9	7.5	7.7	7.9	8.8	8.9	9.1	9.3	8.6	8.9	8.4	7.6	6.9	6.0	5.6	5.7	5.5	5.2	5.8	7.3
Palestine, Tex.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Parkersburg, W. Va.	2.3	2.9	2.7	2.5	2.2	2.4	2.9	3.1	3.5	4.1	4.6	5.4	6.2	6.9	6.9	6.5	6.5	5.6	4.0	3.4	2.9	3.1	2.7	2.7	4.0
Pensacola, Fla.	5.9	6.5	6.6	7.1	7.1	6.7	6.6	6.7	7.3	7.7	8.1	7.8	8.7	10.0	10.7	11.2	11.4	10.8	9.9	8.0	7.1	6.4	6.1	5.5	7.9
Phenix, Ariz.	4.4	4.0	4.0	3.9	3.9	3.7	3.9	3.8	4.2	5.1	5.3	5.7	5.4	5.6	6.1	6.1	6.1	6.3	6.0	5.6	4.7	4.2	3.7	3.9	4.8
Philadelphia, Pa.	5.9	6.0	6.1	5.8	6.2	6.1	6.2	6.9	7.8	7.7	7.7	7.7	9.0	8.6	9.5	9.1	9.1	8.5	7.9	7.7	8.0	7.3	6.6	5.7	7.4
Pierre, S. Dak.	13.3	12.4	12.4	10.4	11.2	11.4	8.6	7.2	7.9	10.0	10.2	10.5	11.5	12.2	12.5	13.1	13.1	13.6	14.0	14.9	13.1	12.1	12.6	12.7	11.7
Pittsburg, Pa.	4.2	3.5	3.4	3.4	3.3	3.3	3.2	4.0	4.4	5.1	5.9	6.3	7.2	7.1	7.0	7.0	7.1	6.8	5.9	4.6	4.0	3.7	3.9	4.0	4.9
Pocatello, Idaho	9.8	10.7	9.5	8.5	9.3	8.8	9.1	9.8	9.0	8.9	9.4	9.1	9.9	10.9	11.2	12.8	12.9	12.9	13.0	12.8	11.1	9.0	7.5	8.6	10.2
Point Reyes Lt., Cal.	16.0	14.9	14.1	12.9	12.5	12.8	12.1	10.4	9.1	7.8	6.9	6.4	6.6	6.9	6.8	6.9	8.4	9.6	9.7	12.2	15.2	17.1	17.9	16.6	11.2
Port Crescent, Wash.	3.8	3.8	3.4	3.2	2.9	2.7	2.6	2.7	2.5	2.1	3.1	4.5	6.1	6.5	6.6	6.9	7.0	6.7	6.8	7.5	6.8	6.4	5.1	4.3	4.8
Port Huron, Mich.	6.8	7.2	7.2	6.8	6.9	6.5	6.1	5.7	7.0	8.0	8.7	9.0	10.1	10.1	10.3	10.2	9.6	8.7	7.7	7.5	7.1	7.5	7.0	7.0	7.9
Portland, Me.	4.5	4.5	4.6	4.2	4.3	4.1	4.4	5.1	5.6	6.7	7.0	7.4	8.3	9.4	9.4	9.3	8.4	7.3	6.0	4.6	5.1	4.6	4.4	4.2	6.0
Portland, Oreg.	9.0	7.4	6.0	5.2	4.8	4.1	4.2	4.0	3.8	3.6	4.8	5.7	6.8	6.5	6.8	6.7	7.1	7.8	8.5	8.7	9.7	9.7	9.6	9.4	6.7
Pueblo, Colo.	5.7	5.2	5.0	5.5	4.6	4.0	4.2	3.8	3.2	3.5	3.7	4.9	5.5	5.8	6.9	7.4	7.7	8.3	8.1	8.8	7.4	6.8	6.3	6.7	5.8
Raleigh, N. C.	3.6	4.0	3.3	3.8	3.5	3.7	4.0	4.8	5.6	5.2	5.7	5.7	6.0	6.5	6.3	5.9	5.0	4.9	3.7	4.0	4.2	4.0	3.6	3.6	4.6
Rapid City, S. Dak.	6.7	7.0	7.3	6.5	5.4	6.0	5.7	5.7	6.3	6.7	7.9	8.4	8.8	9.1	9.0	8.8	8.8	9.0	7.8	7.3	6.2	5.5	5.7	7.5	7.2
Red Bluff, Cal.	5.3	5.3	4.9	4.3	3.8	3.6	3.3	3.2	3.3	3.8	6.1	6.7	7.0	6.5	6.2	6.3	6.7	6.5	6.5	6.6	6.3	6.3	6.3	5.7	5.4
Richmond, Va.	3.2	3.3	3.1	2.7	3.0	3.0	3.2	4.1	4.2	4.4	4.9	4.6	4.8	5.0	4.6	4.9	5.1	4.8	4.4	3.9	3.7	3.3	3.0	3.2	3.9
Rochester, N. Y.	4.9	5.2	5.3	5.3	5.3	5.1	5.3	5.8	5.8	6.3	6.6	7.1	7.5	8.0	7.9	8.0	7.5	6.6	5.7	5.5	5.4	5.0	4.8	4.8	6.0
Roseburg, Oreg.	2.6	1.8	1.2	1.2	1.2	1.3	1.4	1.1	1.4	1.3	2.0	2.9	3.9	4.6	5.2	6.3	6.6	7.4	7.6	8.4	8.5	7.8	5.9	4.1	4.0
Sacramento, Cal.	9.7	9.2	9.4	9.1	9.6	9.0	8.3	8.1	8.2	7.4	7.1	7.6	7.9	7.7	8.5	8.4	9.6	10.3	11.0	11.4	11.5	11.3	11.8	11.3	9.8
St. Louis, Mo.	7.8	7.6	7.5	7.0	7.2	6.4	6.7	6.8	7.5	8.8	9.6	9.1	9.7	9.9	10.4	10.3	10.2	10.2	10.4	8.9	7.9	8.4	8.2	8.1	8.5
St. Paul, Minn.	4.7	4.8	4.5	4.3	4.6	4.3	4.6	4.7	5.4	6.9	7.7	8.5	9.5	10.0	10.0	10.1	9.9	9.3	7.9	6.8	6.4	5.5	5.4	5.0	6.7
Salt Lake City, Utah.	6.0	5.3	4.6	4.4	4.1	4.2	4.3	4.4	3.5	3.2	3.9	5.8	8.0	8.2	9.4	9.3	9.5	10.5	10.6	9.6	6.4	5.9	6.5	6.0	6.4
San Antonio, Tex.	5.7	5.1	4.6	4.6	4.7	4.6	4.4	4.1	5.3	6.6	7.8	7.4	7.9	7.7	8.6	9.4	10.0	10.2	9.7	9.6	8.6	8.2	7.9	6.5	7.1
San Diego, Cal.	3.3	3.3	3.2	3.4	3.5	3.4	3.5	3.7	3.9	4.1	4.3	5.1	7.5	9.0	10.3	10.7	10.8	10.1	9.5	8.6	7.6	6.1	4.7	4.0	6.0
Sandusky, Ohio	5.0	5.0	4.7	5.1	5.3	5.4	4.9	5.3	5.9	6.5	6.6	6.7	6.8	7.1	7.2	6.8	6.4	6.4	5.4	4.8	4.4	4.5	5.1	4.7	5.7
San Francisco, Cal.	11.3	10.6	9.3	8.8	8.3	7.9	7.0	7.3	6.7	7.1	7.3	8.3	8.9	11.5	15.0	18.6	21.3	23.2	22.7	23.1	21.2	19.1	17.0	13.2	13.1
San Luis Obispo, Cal.	3.0	2.7	2.5	2.3	2.4	2.8	2.5	2.9	2.6	3.0	3.8	4.4	5.4	6.5	7.6	8.9	10.2	10.6	10.0	9.6	8.2	5.9	4.5	3.6	5.2
Santa Fe, N. Mex.	5.9	5.9	5.5	5.3	4.0	3.9	3.8	2.9	2.8	3.3	4.8	5.8	6.3	6.6	7.6	8.4	9.8	9.3	9.5	9.8	8.0	5.4	6.0	5.6	6.1
Sault Ste. Marie, Mich.	4.1	3.7	3.7	3.8	3.6	3.5	3.5	4.3	4.8	6.0	6.8	7.7	7.7	8.3	9.0	9.0	8.2	8.1	6.5	5.3	4.3	3.8	3.7	3.5	5.5
Savannah, Ga.	5.2	4.9	5.2	4.6	4.5	4.4	4.4	5.3	5.5	5.6	6.0	6.5	6.6	7.4	8.1	8.4	9.3	8.9	8.4	6.5	6.9	6.3	5.7	5.1	6.2
Seattle, Wash.	4.3	3.9	3.9	3.9	3.9	4.0	4.0	3.6	3.8	3.9	4.4	4.9	5.5	5.6	5.8	5.4	5.7	6.6	6.6	6.4	6.2	5.5	5.0	4.9	4.9
Shreveport, La.	5.3	5.3	4.3	4.3	4.3	4.3	4.6	4.8	5.8	5.9	6.3	6.9	7.0	7.3	7.5	7.7	8.1	7.6	7.6	6.2	5.5	5.7	5.8	5.7	6.0
Sioux City, Iowa	12.0	11.8	13.1	12.1	12.7	11.5	10.9	10.9	10.7	12.5	13.9	14.1	15.1	15.9	16.3	16.3	15.9	15.2	14.3	12.5	12.3	12.5	12.4	12.2	13.2
Spokane, Wash.	6.0	5.8	5.2	5.2	5.9	5.8	5.6	5.5	6.1	6.2	7.3	7.4	6.9	7.8	8.2	9.0	8.5	8.4	8.2	7.8	7.9	7.2	6.5	5.7	5.8
Springfield, Ill.	6.7	6.5	6.4	6.4	6.4	6.4	5.4	5.7	6.4	7.2	7.6	7.5	8.3	8.8	9.6	9.2	9.0	8.2	6.9	6.2	5.7	6.5	6.0	6.7	7.1
Springfield, Mo.	9.0	8.4	8.0	8.1	8.3	8.1	7.9	7.2	8.2	9.8	10.3	10.6	10.8	11.4	12.0	11.8	10.8	11.0	9.9	8.2	8.8	8.5	8.3	8.9	9.3
Tacoma, Wash.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tampa, Fla.	3.3	3.3	3.0	3.3	3.5	3.2	3.4	4.2	5.0	5.5	6.0	6.1	6.6	7.2	7.6	6.9	7.3	6.5	5.7	5.0	4.2	4.1	4.1	3.5	4.9
Toledo, Ohio	6.8	6.8	6.8	6.6	6.4	6.1	5.9	6.6	6.8	7.5	8.4	9.1	9.1	9.6	10.4	10.0	10.1	8.9	7.7	5.8	5.7	6.0	6.0	6.2	7.5
Valentine, Nebr.	11.5	10.7	9.3	9.2	9.1	8.3	8.9	8.4	9.5	12.4	12.2	12.5	13.3	13.8	14.2	14.8	14.8	14.4	14.2	12.4	9.7	8.9	10.7	11.1	11.4
Vicksburg, Miss.	4.6	4.1	4.0	3.9	4.0	3.9	4.1	4.1	4.3	5.2	5.1	6.0	6.5	6.8	7.0	7.1	6.6	6.1	4.8	4.1	4.7	4.9	4.8	4.8	5.1
Walla Walla, Wash.	5.8	5.7	6.0	6.2	5.7	6.1	5.7	5.6	5.4	5.9	6.5	7.1	7.2	7.4	7.2	7.3	7.3	7.4	6.9	6.8	6.4	6.0	5.6	5.7	6.4
Washington, D. C.	3.5	3.9	4.2	3.8	4.1	4.2	4.1	4.6	5.4	6.3	6.4	6.0	6.8	6.8	7.0	6.6	6.0	5.3	4.5	4.1	3.9	3.5	3.3	3.5	4.9
Wichita, Kans.	8.5	8.5	8.4	7.6	7.2	7.1	7.4	7.5	8.5	8.9	10.3	10.8	11.3	12.4	12.7	12.5	12.2	12.0	11.1	9.6	8.4	8.2	9.0	9.1	9.6
Williston, N. Dak.	8.7	9.0	8.3	6.9	6.7	6.5	6.8	6.8	8.5	9.1	8.9	10.4	11.5	10.6	10.4	9.8	10.7	11.1	11.5	10.5	10.7	10.2	8.6	8.2	9.2
Wilmington, N. C.	5.5	5.6	5.4	5.1	5.2	4.8	5.1	5.8	6.9	7.0	7.0	7.7	8.2	9.3	9.7	9.5	9.5	8.1	7.0	6.3	5.9	5.6	5.6	5.1	6.7
Winnemucca, Nev.	7.8	8.3	8.9	7.8	7.5	8.4	8.7	7.7	6.3	5.8	6.9	7.5	8.1	8.6	9.5	10.6	11.1	11.1	11.3	9.9	9.3	8.4	7.7	7.0	8.5
Yankton, S. Dak.	9.7	9.9	9.0	8.3	8.6	8.1	7.3	7.3	8.5	10.6	11.3	11.6	12.7	12.8	13.4	13.5	13.9	13.7	12.8	10.5	8.5	8.7	9.4	9.6	10.4
West Indies.																									
Basseterre, St. Kitts	9.5	10.5	10.4	10.2	10.1	10.3	11.1	12.5	12.4	13.2	13.5	13.1	12.7	12.5	12.2	11.4	10.5	10.0	9.5	10.0	10.0	9.8	9.7	10.0	11.0
Bridgetown, Bar.	4.3	4.4	4.0	3.9	4.2	4.8	5.9	8.6	10.1	10.5	10.8	10.2	10.6	9.6	9.2	8.4	7.0	5.3	4.6	4.4	4.4	5.0	4.8	4.6	6.7
Cienfuegos, Cuba	5.7	6.2	6.1	6.1	6.2	5.7	5.6	5.9	7.6	8.5	8.4	8.0	8.7	9.2	9.3	9.1	8.3	6.4	4.9	4.9	5.5	5.3	5.2	5.6	6.8
Havana, Cuba	5.5	5.5	5.0	4.6	4.8	5.2	5.0	6.0	10.4	12.5	13.4	15.6	17.1	18.9	19.2	18.5	18.0	16.6	14.6	12.0	11.2	10.0	8.6	6.6	11.0
Kingston, Jamaica	4.4	4.3	4.2	4.7	4.6	5.0	4.5	3.4	2.8	3.5	6.3	10.3	12.3	12.8	11.5	8.8	6.9	5.0	3.2	3.5	3.6	3.8	4.0	4.1	5.7
Port of Spain, Trin.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Puerto Principe, Cuba	4.6	4.5	4.1	4.2	3.9	4.1	4.5	9.2	13.3	12.9	12.1	11.5	11.8	12.5	13.1	14.2	14.6	12.6	9.6	7.4	6.9	5.8	5.5	5.1	8.7
Roseau, Dominica	4.3	4.3	4.7	4.1	4.2	4.1	3.6	3.4	4.2	5.1	6.0	6.4	6.5	6.3	6.1	5.8	5.0	3.5	3.9	4.4	4.3	4.5	4.2	4.0	4.7
San Juan, Porto Rico.	10.2	10.1	8.7	8.3	7.6	7.7	8.1	10.8	14.3	16.6	18.7	18.5	18.4	17.6	16.8	16.0	15.4	13.8	13.1	12.5	11.5	11.5	11.5	10.8	12.9
Santiago de Cuba	2.7	2.4	2.4	2.6	2.5	2.3	2.3	3.6	5.0	5.0	5.3	5.5	6.5	6.4	6.0	5.2	4.5	3.3	3.1	2.6	2.8	2.7	2.9	2.6	3.8
Santo Domingo, S. D.	4.3	4.5	4.5	4.4	4.5	5.0	4.3	5.5	5.9	5.7	6.3	7.0	6.9	6.9	7.2	7.0	6.2	5.8	5.0	5.0	5.1	5.0	5.0	4.5	5.5
Willemstad, Curaçao.	11.5	10.9	10.5	10.3	10.1	9.6	11.2	14.0	14.5	15.1	15.1	15.7	15.1	15.5	15.8	16.3	16.2	15.9	15.2	14.7	13.8	12.9	12.0	11.8	13.5

TABLE VI.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during the month of August*, 1900.

Stations.	Component direction from— N.	S.	E.	W.	Resultant. Direction from—	Duration.
	Hours.	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
New England.						
Eastport, Me	26	18	7	23	n. 63 w.	18
Portland, Me	25	19	9	25	n. 69 e.	17
Northfield, Vt	23	33	4	11	s. 35 w.	12
Boston, Mass	19	17	13	19	n. 72 w.	6
Nantucket, Mass	19	21	19	21	s. 45 w.	3
Block Island, R. I	12	24	21	22	s. 9 w.	12
New Haven, Conn	23	15	18	21	n. 21 w.	8
Middle Atlantic States.						
Albany, N. Y	25	36	9	22	s. 50 w.	17
Binghamton, N. Y.†	19	5	1	10	n. 33 w.	16
New York, N. Y	17	19	17	23	s. 72 w.	6
Harrisburg, Pa.†	14	3	6	13	n. 32 w.	13
Philadelphia, Pa	22	20	14	21	n. 74 w.	7
Atlantic City, N. J	16	23	18	19	s. 8 w.	7
Cape May, N. J.	13	22	18	17	s. 6 e.	9
Baltimore, Md	22	12	23	16	n. 35 e.	12
Washington, D. C	26	16	11	21	n. 45 w.	17
Lynchburg, Va	17	16	12	29	n. 87 w.	17
Norfolk, Va	11	28	25	16	s. 28 e.	19
Richmond, Va	22	22	13	21	w.	8
South Atlantic States.						
Charlotte, N. C	20	25	18	19	s. 11 w.	5
Hatteras, N. C	16	20	16	24	s. 63 w.	9
Kittyhawk, N. C.*	4	17	10	11	s. 4 w.	13
Raleigh, N. C	18	20	6	31	s. 85 w.	25
Wilmington, N. C	14	20	11	30	s. 72 w.	20
Charleston, S. C	14	27	9	25	s. 51 w.	21
Augusta, Ga	19	25	9	28	s. 72 w.	20
Savannah, Ga	13	28	9	22	s. 41 w.	20
Jacksonville, Fla	7	29	21	22	s. 3 w.	22
Florida Peninsula.						
Jupiter, Fla	5	16	41	12	s. 69 e.	31
Key West, Fla	9	2	51	7	s. 81 e.	45
Tampa, Fla	26	11	36	7	n. 62 e.	33
Eastern Gulf States.						
Atlanta, Ga	18	17	14	28	n. 86 w.	14
Macon, Ga†	15	8	9	11	n. 16 w.	7
Pensacola, Fla.†	13	3	12	11	n. 6 e.	10
Mobile, Ala	24	21	13	20	n. 67 w.	8
Montgomery, Ala	20	14	19	22	n. 27 w.	7
Meridian, Miss.†	2	14	7	12	s. 23 w.	13
Vicksburg, Miss	7	34	21	14	s. 15 e.	28
New Orleans, La	12	29	26	13	s. 38 e.	22
Western Gulf States.						
Shreveport, La	7	37	21	7	s. 25 e.	33
Fort Smith, Ark	7	23	39	4	s. 65 e.	38
Little Rock, Ark	8	35	25	9	s. 31 e.	31
Corpus Christi, Tex	3	37	31	7	s. 35 e.	42
Fort Worth, Tex†	1	21	11	6	s. 14 e.	21
Galveston, Tex	5	41	23	5	s. 27 e.	40
Palestine, Tex	8	44	17	4	s. 20 e.	38
San Antonio, Tex	7	30	43	1	s. 61 e.	48
Ohio Valley and Tennessee.						
Chattanooga, Tenn	19	21	9	25	s. 83 w.	16
Knoxville, Tenn	25	18	16	20	n. 30 w.	8
Memphis, Tenn	8	30	20	16	s. 10 e.	22
Nashville, Tenn	18	17	14	26	n. 85 w.	12
Lexington, Ky†	4	19	6	9	s. 11 w.	15
Louisville, Ky	8	35	7	23	s. 31 w.	31
Evansville, Ind.†	2	15	9	8	s. 4 e.	13
Indianapolis, Ind	13	20	11	28	s. 68 w.	18
Cincinnati, Ohio	19	21	19	17	s. 34 e.	4
Columbus, Ohio	15	19	17	23	s. 56 w.	7
Pittsburg, Pa	32	9	6	30	n. 46 w.	33
Parkersburg, W. Va	20	28	9	18	s. 48 w.	12
Elkins, W. Va	23	23	6	23	w.	17
Lower Lake Region.						
Buffalo, N. Y	22	21	14	28	n. 66 w.	14
Oswego, N. Y	11	28	17	25	s. 28 w.	19
Rochester, N. Y	11	24	14	31	s. 52 w.	22
Erie, Pa	12	17	12	31	s. 75 w.	20
Cleveland, Ohio	15	27	20	17	s. 14 e.	12
Sandusky, Ohio	10	22	16	24	s. 34 w.	14
Toledo, Ohio	13	24	13	38	s. 66 w.	27
Detroit, Mich	12	21	15	28	s. 55 w.	16
Upper Lake Region.						
Alpena, Mich	15	24	17	19	s. 13 w.	9
Escanaba, Mich	19	27	10	16	s. 37 w.	10
Grand Haven, Mich	12	28	18	21	s. 11 w.	16
Marquette, Mich	16	25	14	25	s. 51 w.	14
Port Huron, Mich	18	23	14	22	s. 58 w.	9
Sault Ste. Marie, Mich	11	15	27	18	s. 66 e.	10
Chicago, Ill	13	29	21	20	s. 3 e.	16
Milwaukee, Wis.	9	24	17	25	s. 28 w.	17
Green Bay, Wis	11	32	18	14	s. 11 e.	21
Duluth, Minn	32	7	30	13	n. 34 e.	30
North Dakota.						
Moorhead, Minn	18	22	27	12	s. 75 e.	16
Bismarck, N. Dak	23	14	28	10	n. 69 e.	19
Williston, N. Dak	21	19	19	15	n. 63 e.	4
Upper Mississippi Valley.						
St. Paul, Minn	5	36	16	18	s. 4 w.	18
Upper Mississippi Valley—Cont'd.						
La Crosse, Wis. †	4	21	6	5	s. 3 e.	17
Davenport, Iowa	8	32	18	16	s. 5 e.	24
Des Moines, Iowa	8	33	17	22	s. 11 w.	26
Dubuque, Iowa	9	38	15	14	s. 4 e.	29
Keokuk, Iowa	8	34	13	22	s. 19 w.	28
Cairo, Ill	6	37	16	17	s. 2 w.	31
Springfield, Ill	2	39	10	24	s. 21 w.	40
Hannibal, Mo†	1	19	6	14	s. 24 w.	20
St. Louis, Mo	4	44	9	15	s. 9 w.	40
Missouri Valley.						
Columbia, Mo.*	3	21	8	5	s. 9 e.	18
Kansas City, Mo	9	41	25	4	s. 34 e.	38
Springfield, Mo	4	42	17	9	s. 11 e.	39
Lincoln, Nebr	5	41	26	5	s. 30 e.	42
Omaha, Nebr	4	36	29	8	s. 33 e.	39
Valentine, Nebr	14	34	15	12	s. 9 e.	20
Sioux City, Iowa†	4	21	9	5	s. 13 e.	18
Pierre, S. Dak	16	22	30	8	s. 75 e.	23
Huron, S. Dak	14	29	28	9	s. 52 e.	24
Yankton, S. Dak†	6	15	8	9	s. 6 w.	9
Northern Slope.						
Havre, Mont	19	14	13	30	n. 74 w.	18
Miles City, Mont	21	16	25	14	n. 66 e.	12
Helena, Mont	12	25	5	39	s. 69 w.	36
Kalispell, Mont	15	13	10	36	n. 86 w.	26
Rapid City, S. Dak	22	16	16	24	n. 53 w.	10
Cheyenne, Wyo	20	21	5	32	s. 86 w.	27
Lander, Wyo	6	33	3	36	s. 50 w.	43
North Platte, Nebr	7	27	21	12	s. 24 e.	22
Middle Slope.						
Denver, Colo	11	35	12	16	s. 9 w.	24
Pueblo, Colo	24	14	22	20	n. 11 e.	10
Concordia, Kans	4	48	13	4	s. 12 e.	45
Dodge, Kans	5	44	22	3	s. 26 e.	43
Wichita, Kans	3	51	10	3	s. 8 e.	48
Oklahoma, Okla	3	51	15	1	s. 16 e.	50
Southern Slope.						
Abilene, Tex	0	41	41	1	s. 44 e.	57
Amarillo, Tex	3	50	9	11	s. 2 w.	47
Southern Plateau.						
El Paso, Tex	18	9	31	17	n. 57 e.	17
Santa Fe, N. Mex	11	26	29	14	s. 45 e.	21
Flagstaff, Ariz	21	14	3	28	n. 74 w.	26
Phenix, Ariz	22	4	24	16	n. 24 e.	20
Yuma, Ariz	8	17	13	30	s. 62 w.	19
Independence, Cal	11	27	19	25	s. 21 w.	17
Middle Plateau.						
Carson City, Nev	12	16	1	44	s. 85 w.	43
Winnemucca, Nev	18	18	13	24	w.	11
Cedar City, Utah	4	42	19	18	s. 2 e.	38
Salt Lake City, Utah	17	30	17	14	s. 18 e.	13
Grand Junction, Colo	16	14	21	18	n. 56 e.	4
Northern Plateau.						
Baker City, Oreg	21	27	11	14	s. 27 w.	7
Boise, Idaho	23	14	13	29	n. 61 w.	18
Pocatello, Idaho	14	26	5	27	s. 61 w.	25
Spokane, Wash	12	31	9	22	s. 34 w.	23
Walla Walla, Wash	7	40	7	18	s. 18 w.	35
North Pacific Coast Region.						
Neah Bay, Wash	7	10	7	24	s. 80 w.	17
Port Crescent, Wash*	1	4	4	19	s. 79 w.	15
Seattle, Wash	11	26	18	20	s. 8 w.	15
Tacoma, Wash	24	22	2	30	n. 86 w.	28
Astoria, Oreg	17	20	1	39	s. 86 w.	38
Portland, Oreg	26	21	5	28	n. 78 w.	24
Roseburg, Oreg	37	3	12	19	n. 12 w.	35
Middle Pacific Coast Region.						
Eureka, Cal	25	14	5	36	n. 70 w.	33
Mount Tamalpais, Cal	20	1	2	43	n. 65 w.	45
Red Bluff, Cal	19	29	23	4	s. 62 e.	22
Sacramento, Cal	4	42	11	25	s. 20 w.	40
San Francisco, Cal	0	22	1	51	s. 66 w.	55
South Pacific Coast Region.						
Fresno, Cal	39	1	1	43	n. 48 w.	57
Los Angeles, Cal	8	23	13	33	s. 53 w.	25
San Diego, Cal	20	19	7	32	n 88 w.	25
San Luis Obispo, Cal	6	16	3	37	s. 74 w.	35
West Indies.						
Basseterre, St. Kitts Island	11	2	54	0	n. 82 e.	55
Bridgetown, Barbados	11	9	52	1	n. 88 e.	51
Cienfuegos, Cuba	39	1	43	1	n. 48 e.	57
Havana, Cuba	21	2	51	1	n. 69 e.	54
Kingston, Jamaica	46	3	21	6	n. 19 e.	46
Port of Spain, Trinidad	13	9	50	2	n. 85 e.	48
Puerto Principe, Cuba	23	2	50	2	n. 66 e.	52
Roseau, Dominica, W. I	25	1	44	6	n. 58 e.	45
San Juan, Porto Rico	4	15	53	1	s. 77 e.	53
Santiago de Cuba, Cuba	39	7	29	5	n. 37 e.	40
Santo Domingo, S. Domingo, W. I.	51	3	9	4	n. 6 e.	48
Turks Island, W. I.†	2	14	23	0	s. 62 e.	26
Willemstad, Curaçao	1	4	59	0	s. 87 e.	59

*From observations at 8 p. m. only. †From observations at 8 a. m. only.

TABLE VII.—*Thunderstorms and auroras, August, 1900.*

States.	No. of stations.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total. No.	Total. Days.	
Alabama	52	T.	1	2	1	2	2			1	2	3	3	6	1	4	5	5	4	2	1	2	1	7	6	2	2	3	5	6	4	6	2	91	29	T
		A.																																0	0	A
Arizona	56	T.	4	8	9	7	4										1	2	10	8	2											3	5	63	12	T.
		A.																																0	0	.
Arkansas	57	T.			1			3								2	1	1	4	5	2	3	3	10	9	7	10	10	13	2	4	7	4	101	20	T.
		A.																																0	0	A.
California	167	T.	5						2			1				3				1	1	3	1	1		1				2	1	3	1	26	14	T.
		A.																																0	0	A.
Colorado	81	T.	2	9	9	9	14	15	4	4	13	10				1	1		2	5	5	14	14	9	7	2					2	7	5	163	28	T.
		A.																																0	0	A.
Connecticut	21	T.						10	6	3		2		2			9	8	8		1					1	1	3	4	1	3			62	15	T.
		A.																																0	0	A.
Delaware	5	T.						1	3	1				1						2			1		1	1		1	1					13	10	T.
		A.																																0	0	A.
Dist. of Columbia	4	T.												1			1				1					1		1	1					6	6	T.
		A.																																0	0	A.
Florida	47	T.	10	9	6	8	12	3	2	1	1	5	5	8	9	6	6	7	5	3	3	4	4	10	8	6	8	5	4	6	6	6	3	179	31	T.
		A.																																0	0	A.
Georgia	55	T.		1	2	2	2				2	1	3	3	2	5	5	4	5	3	6	3	4	10	10	8	11	1	1	3	7	13	6	123	27	T.
		A.																																0	0	A.
Idaho	34	T.	3							1	1	2	3								4	4	6	5	1					1	1			32	11	T.
		A.																																	0	A.
Illinois	92	T.	12	1			1	1					16	24	7	33	29	19	13	5	5	6	11	9	22	20	13	6	1	2	2	2	6	266	25	T.
		A.																																0	0	A.
Indiana	58	T.	1	8	4	4	1						3	23	7	21	19	10	12	9	7	10	10	14	13	3	10	6		1			2	198	22	T.
		A.																																0	0	A.
Indian Territory	11	T.			1	1	1																1	2		2	3	1	3	6		2	1	24	12	T.
		A.																																0	0	A.
Iowa	149	T.	4				1	1		4		2	25	30	15	30	37	22	15	1		5	6	11	26	28	6		4				3	276	21	T.
		A.																																0	0	A.
Kansas	77	T.						1		3		1	7	4	6		14	2	1		2	1	17	15	14	15	16	2	16	7		4	13	161	21	T.
		A.																																0	0	A.
Kentucky	41	T.	5	6	6							1		6	13	7	4	9	3			2	7	15	7	5	2	5	1	4	4		4	116	21	T.
		A.																																0	0	A.
Louisiana	46	T.	9	7	5	4	2	1	3		2	3	4	3	3	2	4	7	2	6	6	2	2	4	4	1	3	11	7	4	4	8	5	128	30	T.
		A.																																0	0	A.
Maine	19	T.		1								1	1									2	1	3				2			1			12	8	T.
		A.																																0	0	A.
Maryland	48	T.			2	1				1	2		2	14	7		13	7	3	9	4	10	4	1	4	14	2	11	18	1	6			136	22	T.
		A.																																0	0	A.
Massachusetts	48	T.	4				1	11	9	2		13		2	1	1	19	12	12	1	7	1			2	2		1	8	4	3			116	21	T.
		A.																																0	0	A.
Michigan	106	T.	1	5		2	4	5	4	9	3	4	8	11		10	4		5	3	34	28	1	1	16	16	12	9	5	5		2		207	5	T.
		A.																																0	0	A.
Minnesota	67	T.	6	4	1	8	8	12	11	15	12	12	15	14	4	12	6	4	3	5	6	5	1	15	8	8	5		2		4	4		210	28	T.
		A.																																0	0	A.
Mississippi	44	T.	1	3	3	6	5	3	1		1	2	1			2	6	7	9	3	4			10	4	4	3	5	5	2	7	8	3	108	26	T.
		A.																																0	0	A.
Missouri	95	T.	2	1			1			2			13	17	29	12	16	8	1	14	6	1	38	23	22	28	38	13	32	5	2	4	7	335	25	T.
		A.																																0	0	A.
Montana	40	T.	1			1	6	10	6	8	3	8	10			1	6	2			1	2	5	2	1	1	1			1	1	2		79	22	T.
		A.			1																													1	1	A.
Nebraska	142	T.			1	3	4	11	5	12		3	22	16	8	13	27	16	6		2	5	21	4	23	12	1	4	26	1	2	2	3	253	28	T.
		A.																	1															1	1	A.
Nevada	40	T.	1	1		1												1	1	1	3			4										10	8	T.
		A.																																0	0	A.
New Hampshire	19	T.			1			7	4	1	1	5	4		2		2	3						2		1		5	5	1	2			46	16	T.
		A.																																0	0	A.
New Jersey	51	T.			4			13	9	13	4			19	9	2	11	15	7	14						19	6	22	14	3	15			199	18	T.
		A.																										1						1	1	A.
New Mexico	31	T.		1	3	5	4	3	2	5	6	2							3	2	1	1	1	1						2	3	2	1	48	19	T.
		A.																																0	0	A.
New York	99	T.	7	4	1	2	6	14	23	10	4	6	7	10	6	3	13	10	3	8	1	3	2		1	12		15	31	4	12			218	27	T.
		A.																																0	0	A.
North Carolina	56	T.	1	1	4	1				1		1	8	11	13	2	4	17	8	3	3	16	14	16	14	11	5	5	7	14	22	9	3	214	27	T.
		A.																																0	0	A.
North Dakota	48	T.	2	1	1	6	3	3	2	4	8	5	4	5	1	5		1	6	3	2	3	3	6	1	1	1				2		2	81	26	T.
		A.																																0	0	A.
Ohio	128	T.	2	9	3		1					1	7	28	6	9	35	11	4	6	37	39	18	3	25	26	22	17	9	1			1	320	24	T.
		A.																																0	0	A.
Oklahoma	23	T.							1															2	9	2	3		1	6		2		26	8	T.
		A.																																0	0	A.
Oregon	74	T.							4	6		1			2	1				3	5	6	2	3				1	4	1	1			40	14	T.
		A.																																0	0	A.
Pennsylvania	91	T.	2	1				9	8	3	1		4	26	7	2	15	18	4	16	5	9	5		1	22	4	18	28	4	2	2		216	25	T.
		A.																																0	0	A.
Rhode Island	7	T.																	2		1													3	2	T.
		A.																																0	0	A.
South Carolina	46	T.	3	1	5	3				1		3	4	8	2	6	5	3	11	4	2	7	5	8	20	7	10	3	2	2	12	9	9	145	27	T.
		A.																																0	0	A.
South Dakota	56	T.		1		9	12	7	4		8	9	11	11	8	10	3	3	4	2	1		8	6	8	6		3	1			1		136	23	T.
		A.																																0	0	A.
Tennessee	56	T.	1		1		1		1			2	2	5	9	3		4	8	2	3	3	6	14	12	2	7	2	1	11	13	4	8	125	25	T.
		A.																																0	0	A.
Texas	95	T.	11	7	8	3	3	6	8	12	4	3	1	1				3	1	6	12	3	1	1			1	2	5	8	11	7	6	134	26	T
		A.																																0	0	A.
Utah	47	T.	3	3	4	9	2												2	3	5	5			1	1							1	39	12	T.
		A.																																0	0	A.
Vermont	16	T.		1				6	3	2		4	3	1			1	2						1		1		5	5		4			39	14	T.
		A.																																0	0	A.
Virginia	50	T.	6						2	2	2	1	8	2	3	4	12	2	6	2	6	4	7	4	9	1	3	5	2	8	4	1		106	25	T.
		A.																																0	0	A.
Washington	64	T.	2	1			1		1	1	1	3	7											3			1			2				23	13	T.
		A.																																0	0	A.
West Virginia	43	T.		1						1				9	5	1	7	10		10	5	9	7	2	3	5	3	2	1		2	1		84	19	T.
		A.																																0	0	A.
Wisconsin	60	T.	7	13	6	1		4	3	3	7	5	7	9	1	7	8	3	1	1	5	17	4	9	17	16	4	2	2					162	26	T.
		A.																																0	0	A.
Wyoming	31	T.		1	2	3	2				3	2	1	1		2	1	2	1		1	1	2	2	2						1	2		32	19	T.
		A.																																0	0	A.
Sums	2,898	T.	119	112	94	101	104	160	131	132	91	127	219	331	186	222	350	260	195	171	208	239	244	265	321	321	217	207	275	131	170	123	104	5,930	...	T.
		A.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	....	A.

TABLE VIII.—*Average hourly sunshine (in percentages), August, 1900.*

Stations.	Instrument.	Percentages for each hour of local mean time ending with the respective hour.																Hours of sunshine.			
		A. M.								P. M.								Total.			Personal estimate.
		5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	Actual.	Possible.	Percent of possible.	
																		Hours.	Hours		
Albany, N. Y.	T.	44	23	38	62	78	82	89	88	90	86	90	84	76	58	42	34	305.0	431.3	71	59
Atlanta, Ga.	T.	......	65	73	83	82	85	88	90	90	87	77	65	60	53	28	......	309.4	415.8	74	59
Atlantic City, N. J.	T.	......	50	57	78	88	94	94	91	93	93	88	85	77	69	60	82	340.4	423.2	80	63
Baltimore, Md.	T.	......	25	29	52	63	80	84	84	82	76	78	74	52	17	9	0	247.8	423.2	59	60
Binghamton, N. Y.	T.	33	27	26	41	55	69	72	74	76	73	64	65	54	47	40	65	242.6	429.4	56	43
Bismarck, N. Dak.	P.	29	45	51	62	66	77	77	73	75	84	81	76	71	43	23	32	282.7	440.0	64	72
Boise, Idaho	P.	73	50	65	80	85	88	92	86	80	82	80	76	77	67	55	79	331.1	433.6	76	62
Boston, Mass.	T.	67	44	55	61	63	68	66	69	69	69	66	64	55	49	49	54	260.6	429.4	61	52
Buffalo, N. Y.	T.	67	37	63	80	81	84	90	95	97	95	92	85	80	67	48	28	338.0	431.3	78	46
Cedar City, Utah	T.	......	76	78	81	88	93	95	98	93	91	85	84	83	79	74	43	361.5	422.1	86	77
Charleston, S. C.	T.	......	30	33	66	75	79	66	83	78	77	68	67	45	30	32	......	251.1	414.0	61	60
Chattanooga, Tenn.	T.	......	67	69	65	83	90	93	87	83	70	68	65	55	42	44	100	294.0	417.1	70	65
Cheyenne, Wyo.	P.	100	75	77	89	90	93	94	79	74	68	68	64	55	47	41	45	310.3	427.4	73	59
Chicago, Ill.	T.	67	43	45	54	54	60	64	71	76	78	76	66	56	45	46	54	256.7	429.4	60	55
Cincinnati, Ohio	T.	......	66	65	76	87	91	96	98	98	98	92	85	82	73	63	100	356.4	423.2	84	58
Cleveland, Ohio	T.	83	65	65	65	70	81	87	88	84	80	78	85	64	59	53	81	315.6	429.4	73	65
Columbia, Mo.	T.	......	77	71	79	85	95	98	96	95	92	89	84	78	67	60	91	354.2	423.2	84	59
Columbus, Ohio	T.	0	52	52	57	75	83	78	85	92	95	89	81	74	57	48	71	312.5	425.2	78	65
Denver, Colo.	P.	0	78	88	94	95	96	95	90	80	75	69	56	49	27	9	0	304.6	425.2	72	56
Des Moines, Iowa	T.	100	46	47	64	83	83	82	84	75	70	66	64	52	44	46	54	278.8	429.4	65	52
Detroit, Mich.	T.	50	32	30	58	72	74	81	80	82	80	72	60	49	43	41	46	263.3	429.4	61	51
Dodge, Kans.	P.	......	75	82	91	91	92	93	95	91	95	96	92	85	80	67	71	371.3	422.1	88	71
Dubuque, Iowa	T.	33	41	50	65	78	85	91	94	94	93	93	87	79	62	54	73	328.6	429.4	77	64
Eastport, Me.	P.	37	38	46	46	58	64	60	67	75	66	61	65	58	53	48	50	250.1	435.6	57	42
Elkins, W. Va.	T.	......	3	8	29	65	79	86	86	88	90	90	87	67	29	21	36	254.1	423.2	60	55
Erie, Pa.	T.	33	34	37	53	66	77	87	85	84	86	81	80	71	45	19	19	279.4	429.4	65	54
Escanaba, Mich	T.	19	20	23	35	47	56	64	61	59	62	60	53	40	16	10	9	188.4	437.6	43	43
Eureka, Cal	P.	100	32	33	32	42	54	61	69	74	70	73	75	73	75	69	95	255.2	427.4	60	53
Fresno, Cal.	T.	......	89	87	90	92	97	98	99	99	100	99	97	95	90	87	100	396.7	420.1	94	90
Galveston, Tex	P.	......	13	38	72	70	77	68	51	78	75	74	65	66	53	14	......	248.8	408.0	61	53
Grand Junction, Colo.	P.	......	84	72	86	84	89	89	87	73	73	82	71	70	60	71	73	329.5	423.2	78	61
Harrisburg, Pa.	T.	0	67	62	65	68	85	84	87	85	85	73	74	66	53	42	50	303.9	425.2	71	61
Helena, Mont.	P.	65	62	69	79	86	88	83	75	68	66	64	57	53	45	39	48	293.5	440.0	67	46
Huron, S. Dak.	T.	53	49	50	50	65	82	75	80	85	72	72	74	67	53	49	54	285.9	433.6	66	61
Indianapolis, Ind	T.	0	59	58	59	74	87	86	83	86	85	83	80	69	53	49	100	309.5	425.2	73	55
Jacksonville, Fla.	T.	7	76	75	80	82	84	88	88	81	77	73	62	49	27	23	......	286.7	409.7	70	58
Jupiter, Fla	T.	......	36	77	90	88	95	96	94	95	95	92	82	68	42	30	......	325.1	405.3	80	59
Kalispell, Mont.	T.	33	24	23	30	38	46	59	57	63	65	57	50	36	10	0	0	174.2	442.5	39	39
Kansas City, Mo.	P.	......	68	68	74	85	82	78	69	66	69	75	74	73	67	73	91	309.8	423.2	73	68
Knoxville, Tenn	T.	......	74	71	72	85	90	87	95	97	95	95	82	75	58	53	56	340.1	418.7	81	70
Lexington, Ky.	T.	......	81	88	93	97	97	98	96	91	92	92	88	82	70	52	71	361.8	422.1	87	54
Little Rock, Ark	T.	......	76	82	88	91	92	95	96	91	87	92	91	92	79	69	100	366.3	417.1	88	64
Los Angeles, Cal	P.	......	20	21	27	33	48	69	80	92	94	95	96	96	91	87	0	285.5	415.8	69	64
Louisville, Ky	T.	......	81	81	82	91	92	96	91	85	81	71	73	66	55	62	43	333.7	422.1	79	68
Macon, Ga.	T.	......	69	78	90	93	97	100	100	100	98	95	83	63	50	35	......	346.0	414.0	84	57
Meridian, Miss	T.	......	75	71	69	73	75	76	71	77	68	61	48	43	45	49	......	265.6	412.6	64	60
Mount Tamalpais, Cal	P.	......	80	81	81	83	86	88	86	91	94	93	90	87	84	85	100	364.9	422.1	86	80
Nashville, Tenn	T.	......	84	82	93	94	97	97	99	98	92	88	85	83	72	71	100	370.4	418.7	88	66
New Haven, Conn	T.	100	48	49	65	81	92	92	97	98	95	90	84	77	59	36	65	327.0	427.4	77	70
New Orleans, La.	T.	......	40	45	48	64	72	74	66	64	66	55	60	41	29	25	......	224.1	409.7	55	53
New York, N. Y.	T.	50	53	53	58	72	79	79	79	85	82	75	77	66	47	39	35	289.3	427.4	68	56
Norfolk, Va.	T.	......	63	67	80	93	93	96	95	92	92	88	82	69	58	49	80	338.4	420.1	81	66
Northfield, Vt	P.	33	24	33	44	58	71	70	69	61	69	60	57	50	42	26	21	227.0	433.6	52	40
Oklahoma, Okla.	T.	......	62	66	73	80	88	90	92	93	91	89	84	82	72	59	100	336.5	417.1	81	60
Omaha, Nebr.	T.	100	56	65	82	87	92	94	91	94	91	90	92	90	70	46	65	350.2	427.4	82	65
Parkersburg, W. Va.	T.	......	52	55	75	77	77	74	77	65	77	79	85	75	55	44	82	295.5	423.2	70	70
Phenix, Ariz.	P.	......	73	80	88	93	97	95	93	94	93	92	92	85	82	69	......	366.0	414.0	88	76
Philadelphia, Pa	T.	0	56	55	56	64	70	79	78	85	82	78	71	60	34	42	78	277.3	425.2	65	57
Pittsburg, Pa.	T.	100	61	58	62	65	68	70	73	71	61	45	37	25	29	30	60	231.3	427.4	54	55
Pocatello, Idaho	T.	44	51	57	70	81	87	88	91	94	89	82	75	65	51	45	50	316.8	431.3	73	58
Portland, Me	T.	13	5	36	62	75	85	87	89	88	93	85	80	71	48	27	28	288.5	433.6	67	55
Portland, Oreg.	T.	27	26	26	24	35	50	58	61	67	70	69	67	66	57	49	61	227.7	437.6	52	51
Pueblo, Colo	T.	......	78	82	94	98	99	100	100	100	100	97	95	79	68	48	43	375.5	422.1	89	69
Raleigh, N. C	T.	......	71	72	86	97	100	100	100	100	95	91	88	78	59	47	56	357.4	418.7	85	76
Rochester, N. Y.	T.	78	36	38	45	58	66	67	65	72	66	71	61	45	17	16	9	223.1	431.3	52	47
St. Louis, Mo.	T.	......	68	66	72	86	91	95	91	90	95	87	84	75	60	55	91	338.6	423.2	80	65
St. Paul, Minn.	P.	5	27	33	48	62	68	69	62	58	62	60	62	53	35	22	17	223.4	435.6	51	48
Salt Lake City, Utah	T.	50	67	74	85	84	89	91	92	92	93	94	86	88	73	60	40	357.6	427.4	84	80
San Diego, Cal	P.	......	11	15	21	42	62	83	95	92	92	89	86	80	73	53	......	272.0	444.0	66	70
San Francisco, Cal.	T.	......	54	55	65	70	82	89	94	93	98	98	89	77	58	53	100	327.7	422.1	78	64
Santa Fe, N. Mex.	P.	......	76	84	91	99	97	93	95	84	85	85	78	68	61	51	68	346.1	418.7	83	71
Sault Ste. Marie, Mich.	T.	12	12	34	52	60	72	78	77	86	82	75	76	72	58	23	17	266.5	437.6	61	45
Savannah, Ga.	T.	......	85	86	93	98	98	99	91	95	86	76	74	74	66	58	......	352.5	412.6	85	73
Seattle, Wash	T.	0	3	5	15	23	43	58	61	63	64	64	61	50	28	10	11	170.0	442.5	38	42
Spokane, Wash.	T.	9	22	23	45	58	68	67	72	72	68	66	63	67	43	36	38	240.3	442.5	54	44
Tacoma, Wash.	T.	12	14	28	44	52	71	77	88	84	79	81	74	69	62	44	54	271.6	440.0	62	42
Tampa, Fla.	T.	......	67	71	84	87	92	89	84	84	74	70	59	38	31	26	......	283.1	406.9	70	34
Toledo, Ohio	T.	67	58	54	58	75	79	83	88	85	78	72	73	68	49	43	54	296.8	429.4	69	65
Topeka, Kans.	T.	......	68	62	67	75	73	76	79	84	85	82	75	70	69	71	91	313.7	423.2	74	62
Vicksburg, Miss.	T.	......	80	78	84	91	95	96	98	97	87	79	79	68	66	64	......	344.1	412.6	83	59
Washington, D. C.	P.	......	68	70	81	85	83	83	83	79	87	78	82	81	75	73	73	334.7	423.2	79	68
Wilmington, N. C.	T.	......	74	76	87	95	100	96	97	93	84	81	79	78	63	55	100	347.3	415.8	84	67
Yankton, S. Dak.	T.	33	10	18	31	44	56	52	59	55	57	56	59	54	42	17	44	189.9	431.3	44	45
Basseterre, St. Kitts	T.	......	27	28	56	77	81	91	90	91	92	88	72	55	35	31	......	272.0	393.4	69	48
Bridgetown, Barbados	T.	......	48	60	73	72	73	77	76	76	68	63	53	48	39	31	......	247.1	389.0	64	38
Cienfuegos, Cuba	T.	......	81	81	81	86	94	92	88	87	79	57	36	18	6	0	......	259.2	399.1	65	59
Havana, Cuba	T.	......	76	76	82	85	93	91	89	85	80	63	47	39	35	33	......	283.0	400.2	71	48
Kingston, Jamaica, W. I.	T.	......	60	62	91	95	95	94	91	84	69	56	50	42	36	35	......	277.8	394.4	70	55
Port of Spain, Trinidad, W. I.	T.	......																			
Puerto Principe, Cuba	T.	......	62	64	64	80	85	79	78	74	67	67	42	20	15	3	......	234.8	398.1	59	52
Roseau, Dominica, W. I.	T.	......	23	23	26	59	80	88	84	80	83	79	80	75	46	38	......	255.1	391.1	65	40
San Juan, Porto Rico	T.	......	23	35	60	86	86	85	75	74	73	62	62	52	40	18	......	247.4	394.4	63	56
Santiago de Cuba, Cuba	T.	......	90	89	86	89	93	87	77	77	69	62	46	27	25	13	......	268.3	396.8	68	38
Santo Domingo, Santo Domingo	T.	......	75	74	75	82	88	87	72	76	73	57	52	39	24	27	......	254.3	398.4	64	59
Willemstad, Curaçao	T.	......	19	20	49	73	85	86	83	86	88	91	97	90	62	49	......	286.0	388.0	74	63

TABLE IX.—*Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.75 in 1 hour during August, 1900, at all stations furnished with self-registering gages.*

Stations.	Date.	Total duration. From—	Total duration. To—	Total am't of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
	1	2	3	4	5	6	7														
Albany, N. Y.	16			1.34														0.52			
Alpena, Mich.	19-20			1.04														0.87			
Atlanta, Ga.	23	5.45 p. m.	6.05 p. m.	0.63	5.45 p. m.	5.56 p. m.	0.00	0.34	0.60	0.62	0.63										
Atlantic City, N. J.	3			0.23									0.23								
Baltimore, Md.	20-21	D. N.	7.30 p. m.	1.48	5.47 a. m.	6.20 a. m.	0.25	0.10	0.37	0.58	0.72	0.85	0.91	0.93	0.94	0.97	1.00	1.06			
Binghamton, N. Y.	8			0.12											0.12						
Bismarck, N. Dak.	10-11			0.80														0.55			
Boise, Idaho	21			0.06					0.06												
Boston, Mass.	16	3.10 a. m.	12.55 p. m.	1.04	12.10 p. m.	12.30 p. m.	0.50	0.15	0.35	0.51	0.54										
Buffalo, N. Y.	12-13	10.40 p. m.	8.04 a. m.	0.66	7.15 a. m.	7.40 a. m.	0.11	0.07	0.13	0.17	0.21	0.52	0.54								
Do	18	2.25 p. m.	3.55 p. m.	1.16	2.57 p. m.	3.25 p. m.	T.	0.28	0.60	0.81	1.00	1.08	1.10	1.11							
Cairo, Ill.	30			0.13							0.13										
Cedar City, Utah	19			0.22														0.20			
Charleston, S. C.	1			0.30														0.24			
Chicago, Ill.	17	1.06 p. m.	4.27 p. m.	0.86	3.58 p. m.	4.20 p. m.	0.25	0.13	0.22	0.44	0.58	0.61									
Cincinnati, Ohio	3	5.40 a. m.	8.35 a. m.	2.00	5.49 a. m.	6.21 a. m.	0.03	0.18	0.43	0.77	0.83	0.96	1.00	1.17	1.24	1.26	1.28	1.29	1.74	1.74	1.96
Cleveland, Ohio	19			0.41							0.41										
Columbia, Mo.	25	3.02 p. m.	6.50 p. m.	2.24	3.12 p. m.	4.00 p. m.	0.01	0.29	0.76	1.00	1.23	1.52	1.63	1.75	1.86	1.95	1.99	2.01			
Columbus, Ohio	15-16	10.15 p. m.	D. N.	1.12	10.25 p. m.	11.15 p. m.	0.01	0.09	0.37	0.44	0.45	0.51	0.64	0.78	0.98	1.08	1.11				
Denver, Colo.	30			0.02														0.02			
Des Moines, Iowa*																					
Detroit, Mich.	19	4.20 p. m.	4.55 p. m.	0.81	4.25 p. m.	4.41 p. m.	0.03	0.17	0.44	0.70	0.76										
Dodge, Kans.	22			0.80														0.54			
Duluth, Minn.	22			0.84														0.53			
Eastport, Me.	13-14			1.24														0.48			
Elkins, W. Va.	21	12.10 a. m.	5.00 a. m.	1.24	12.12 a. m.	12.30 a. m.	T.	0.22	0.54	0.68	0.76	0.77									
Erie, Pa.	15-16			0.74														0.58			
Escanaba, Mich.	9			0.80														0.46			
Evansville, Ind.	13			0.26														0.26			
Fort Worth, Tex.	10			0.56														0.52			
Fresno, Cal.				0.00														0.00			
Galveston, Tex.	3	7.10 a. m.	11.40 a. m.	2.93	7.12 a. m.	8.25 a. m.	T.	0.19	0.40	0.78	1.03	1.20	1.32	1.40	1.50	1.52	1.53	2.02	2.63	2.74	
Grand Junction, Colo.	5			0.10							0.10										
Harrisburg, Pa.	27	7.34 p. m.	10.20 p. m.	1.25	7.38 p. m.	8.10 p. m.	T.	0.18	0.39	0.60	0.76	0.88	0.96	1.00							
Hatteras, N. C.	20			1.10														*			
Huron, S. Dak.	4-5	8.07 p. m.	5.25 a. m.	2.50	8.25 p. m.	9.50 p. m.	T.	0.05	0.09	0.17	0.21	0.34	0.40	0.48	0.73	0.93	1.02	1.06	1.45	1.53	
Do	9-10	9.32 p. m.	1.50 a. m.	1.37	11.14 p. m.	11.45 p. m.	0.36	0.14	0.28	0.37	0.42	0.55	0.70	0.72							
Indianapolis, Ind.	12	1.50 p. m.	5.00 p. m.	1.29	2.47 p. m.	3.20 p. m.	0.06	0.18	0.32	0.83	0.95	1.01	1.07	1.10							
Jacksonville, Fla.	22	3.50 p. m.	7.15 p. m.	1.68	4.08 p. m.	4.40 p. m.	T.	0.16	0.43	0.76	1.02	1.28	1.39	1.45	1.47						
Jupiter, Fla.	30			0.48														0.46			
Kalispell, Mont.	30			0.22														0.18			
Kansas City, Mo.	27	10.10 a. m.	12.00 m.	0.82	10.22 a. m.	10.45 a. m.	T.	0.33	0.56	0.71	0.76	0.79	0.80								
Key West, Fla.	31			0.46								0.46									
Knoxville, Tenn.	23	8.30 p. m.	10.15 p. m.	1.24	8.42 p. m.	9.20 p. m.	T.	0.12	0.22	0.37	0.64	0.86	1.03	1.20	1.22						
Lexington, Ky.	3	8.01 a. m.	10.45 a. m.	0.87	8.15 a. m.	8.37 a. m.	0.07	0.18	0.36	0.51	0.60	0.64									
Do	22	12.07 p. m.	5.15 p. m.	2.18	12.19 p. m.	1.10 p. m.	T.	0.22	0.43	0.68	0.96	1.32	1.53	1.66	1.81	1.86	1.96	2.01			
Lincoln, Nebr.	15-16	9.47 p. m.	7.40 a. m.	4.27	12.15 a. m.	1.35 a. m.	0.07	0.10	0.22	0.28	0.38	0.45	0.50	0.85	1.29	1.61	1.76	1.79			
					3.30 a. m.	4.10 a. m.	1.94	0.09	0.22	0.41	0.61	0.68	0.81	0.87	0.95	0.98	0.99	1.01			
Do	23-24	11.40 p. m.	3.30 a. m.	1.19	11.40 p. m.	11.55 p. m.	0.00	0.46	0.82	0.87	0.88										
Little Rock, Ark.	26	4.20 a. m.	3.00 p. m.	2.00	8.20 a. m.	8.50 a. m.	0.68	0.11	0.28	0.46	0.56	0.65	0.69	0.70							
Los Angeles, Cal.	17			T.																	
Louisville, Ky.	16	2.16 p. m.	3.25 p. m.	0.59	2.26 p. m.	2.45 p. m.	0.01	0.17	0.36	0.52	0.55	0.56									
Do	26	6.40 p. m.	7.35 p. m.	0.75	6.48 p. m.	7.05 p. m.	T.	0.16	0.44	0.66	0.70	0.73									
Macon, Ga.	12	3.44 p. m.	4.50 p. m.	1.02	3.47 p. m.	4.20 p. m.	T.	0.09	0.46	0.66	0.78	0.88	0.96	1.00	1.01						
Do	23	6.26 p. m.	10.20 p. m.	2.44	7.05 p. m.	8.20 p. m.	0.23	0.16	0.33	0.36	0.38	0.54	0.73	0.91	1.10	1.28	1.54	1.84	1.99		
Do	30	4.40 p. m.	10.33 p. m.	2.00	5.00 p. m.	5.50 p. m.	0.05	0.05	0.15	0.27	0.46	0.68	1.03	1.19	1.26	1.29	1.35	1.41			
Memphis, Tenn.	22			0.20														0.19			
Meridian, Miss.	29	3.25 p. m.	4.55 p. m.	1.51	3.32 p. m.	4.15 p. m.	0.01	0.21	0.53	0.80	1.09	1.21	1.32	1.39	1.44	1.47	1.49	1.50			
Milwaukee, Wis.	24	4.15 p. m.	5.45 p. m.	0.75	4.30 p. m.	4.50 p. m.	0.01	0.11	0.29	0.47	0.60	0.65	0.69								
Montgomery, Ala.	23	3.45 p. m.	4.50 p. m.	0.63	3.47 p. m.	4.10 p. m.	T.	0.16	0.38	0.48	0.56	0.60	0.62								
Do	27	4.30 p. m.	5.15 p. m.	0.74	4.37 p. m.	4.56 p. m.	0.04	0.20	0.54	0.66	0.73	0.74									
Nantucket, Mass.	19			0.52														0.45			
Nashville, Tenn.	28	5.55 p. m.	7.00 p. m.	0.78	5.55 p. m.	6.22 p. m.	0.00	0.11	0.25	0.32	0.49	0.66	0.72	0.73							
New Orleans, La.	6	3.25 p. m.	4.15 p. m.	0.76	3.28 p. m.	4.00 p. m.	T.	0.11	0.26	0.43	0.53	0.63	0.70	0.74	0.76						
Do	28	2.32 p. m.	3.45 p. m.	0.77	2.32 p. m.	3.28 p. m.	0.00	0.08	0.19	0.27	0.41	0.51	0.62	0.72	0.77						
New York, N. Y.	17			0.47							0.47										
Norfolk, Va.	24	3.35 p. m.	4.45 p. m.	0.72	3.45 p. m.	4.15 p. m.	T.	0.20	0.37	0.44	0.54	0.62	0.68	0.71							
Northfield, Vt.	6			0.51														0.48			
Oklahoma, Okla.	28	7.25 a. m.	9.10 a. m.	1.44	7.27 a. m.	8.15 a. m.	T.	0.39	0.69	0.84	0.98	1.09	1.22	1.27	1.28	1.34	1.41	1.43			
Omaha, Nebr.	12			0.87											0.44						
Parkersburg, W. Va.	19-20	6.32 p. m.	D. N.	1.74	7.25 p. m.	8.00 p. m.	0.02	0.09	0.21	0.44	0.74	1.26	1.47	1.56	1.57	1.58					
Philadelphia, Pa.	7			0.50														0.50			
Pittsburg, Pa.	15-16			0.28														0.20			
Pocatello, Idaho	23			0.18														0.11			
Portland, Me.	16			2.08														0.53			
Portland, Oreg.	8	5.46 p. m.	6.50 p. m.	1.25	6.00 p. m.	6.35 p. m.	0.05	0.30	0.60	0.93	1.00	1.05	1.10	1.16	1.16	1.20					
Pueblo, Colo.	6			T.														T.			
Raleigh, N. C.	22	9.45 p. m.	11.30 p. m.	0.69	9.50 p. m.	10.10 p. m.	T.	0.25	0.43	0.55	0.61	0.63									
Do	29	5.55 p. m.	10.00 p. m.	1.76	5.55 p. m.	6.55 p. m.	0.00	0.21	0.32	0.45	0.58	0.72	0.89	1.05	1.15	1.23	1.29	1.43	1.51		
Richmond, Va.	22-23	10.18 p. m.	D. N.	2.87	10.40 p. m.	11.50 p. m.	0.01	0.34	0.41	0.44	0.52	0.57	0.61	0.85	1.09	1.25	1.41	1.80	2.04		
Rochester, N. Y.	11			0.29												0.29					
St. Louis, Mo.	23			0.40														0.40			
St. Paul, Minn.	10-11			1.05														0.37			
Salt Lake City, Utah	24			0.52														0.15			
San Diego, Cal.	20			T.																	
Sandusky, Ohio	20	4.53 a. m.	7.15 a. m.	2.52	4.55 a. m.	6.55 a. m.	0.01	0.15	0.30	0.40	0.51	0.66	0.89	1.06	1.20	1.28	1.30	1.39	1.95	2.09	2.39
San Francisco, Cal.	6			T.																	
Savannah, Ga.	31	6.35 p. m.	D. N.	0.84	6.35 p. m.	7.00 p. m.	0.00	0.05	0.12	0.35	0.54	0.62	0.64	0.70	0.73	0.76					
Seattle, Wash.	23			0.14														0.03			
Spokane, Wash.	11			0.18														0.08			
Tampa, Fla.	5	1.42 p. m.	6.30 p. m.	1.06	1.42 p. m.	2.00 p. m.	0.00	0.20	0.55	0.88	0.95										
Do	26	4.15 p. m.	6.50 p. m.	1.75	4.15 p. m.	4.45 p. m.	0.00	0.30	0.75	1.20	1.40	1.50	1.60	1.65							
Toledo, Ohio	12	6.10 p. m.	7.25 p. m.	0.71	6.15 p. m.	6.50 p. m.	0.01	0.06	0.35	0.54	0.68	0.69									
Topeka, Kans.	21	5.02 p. m.	6.57 p. m.	0.80	5.32 p. m.	6.05 p. m.	T.	0.14	0.37	0.53	0.58	0.66	0.74	0.77							
Vicksburg, Miss.	6			0.10														0.09			
Washington, D. C.	21	3.53 p. m.	4.20 p. m.	0.42	3.54 p. m.	4.04 p. m.	T.	0.21	0.42												
Wilmington, N. C.	3	1.55 p. m.	2.10 p. m.	0.90	1.55 p. m.	2.10 p. m.	0.00	0.12	0.75	0.90											
Yankton, S. Dak.	14	2.55 a. m.	3.35 a. m.	0.68	2.59 a. m.	3.10 a. m.	T.	0.38	0.50	0.53	0.58	0.62	0.63	0.66							
Basseterre, St. Kitts	5			0.30									0.30								

TABLE IX.—*Accumulated amounts of precipitation for each 5 minutes, etc.*—Continued.

Stations.	Date.	Total duration. From—	Total duration. To—	Total am't of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time as indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
	1	2	3	4	5	6	7														
Bridgetown, Barbados	21	6.30 a.m.	8.55 a.m.	1.43	7.30 a.m.	8.30 a.m.	0.06	0.12	0.28	0.35	0.37	0.37	0.41	0.54	0.72	0.94	1.11	1.29	1.36		
Cienfuegos, Cuba	30	3.30 p.m.	4.30 p.m.	0.73	3.56 p.m.	4.10 p.m.	T.	0.31	0.63	0.70	0.73										
Havana, Cuba	15			0.86														0.33			
Kingston, Jamaica	6	1.20 p.m.	2.40 p.m.	1.08	1.24 p.m.	1.40 p.m.	T.	0.45	0.78	0.91	0.93	0.94									
Port of Spain, Trin.	3	9.22 a.m.	9.55 a.m.	0.69	9.22 a.m.	9.35 a.m.	0.00	0.20	0.48	0.67	0.68										
Do	15	11.05 a.m.	12.50 p.m.	0.95	10.05 a.m.	11.25 a.m.	0.00	0.10	0.34	0.63	0.68										
Do	22	6.47 a.m.	10.50 a.m.	1.76	7.35 a.m.	8.45 a.m.	0.27	0.06	0.15	0.21	0.46	0.63	0.79	0.92	0.97	1.03	1.07	1.20	1.39		
Puerto Principe, Cuba	1			0.40														0.35			
Roseau, Dominica	17-18			1.38														0.29			
San Juan, Porto Rico	2	10.35 a.m.	2.47 p.m.	2.02	2.03 p.m.	2.45 p.m.	0.51	0.10	0.25	0.40	0.45	0.67	1.00	1.35	1.47	1.50					
Santiago de Cuba	19	5.35 p.m.	7.25 p.m.	2.11	5.46 p.m.	6.30 p.m.	T.	0.04	0.15	0.39	0.65	0.87	1.15	1.35	1.64	1.73	1.76	1.78	2.02	2.11	
Santo Domingo, S. D.	15	4.55 p.m.	6.45 p.m.	0.84	5.00 p.m.	5.25 p.m.	T.	0.05	0.10	0.28	0.56	0.69									
Willemstad, Curaçao	19			0.20														0.15			

*Self register out of order.

TABLE X.—*Data furnished by the Canadian Meteorological Service, August*, 1900.

Stations.	Pressure.			Temperature.				Precipitation.		
	Mean not reduced.	Mean reduced.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.	Departure from normal.	Depth of snow.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	*Ins.*	*Ins.*	*Ins.*
St. Johns, N. F	29.77	29.91	−.08	55.6	− 4.2	63.5	47.7	2.40	−1.85	
Sydney, C. B. I	29.94	29.98	+.02	62.0	− 1.3	71.0	53.0	2.54	−1.36	
Halifax, N. S	29.88	29.99	+.01	65.3	+ 1.7	74.0	56.6	3.99	+0.43	
Grand Manan, N. B	29.94	30.00	+.04	63.7	+ 2.2	71.6	55.8	2.74	−0.35	
Yarmouth, N. S	29.93	30.01	+.01	61.2	+ 1.0	68.5	53.9	3.28	+0.06	
Charlottet'n, P. E. I	29.92	29.96	+.01	64.8	+ 0.5	72.8	56.8	3.48	+0.08	
Chatham, N. B	29.95	29.97	+.03	64.5	+ 1.3	74.5	54.6	2.11	−2.03	
Father Point, Que	29.93	29.96	+.05	54.7	− 0.9	63.7	45.7	0.96	−1.60	
Quebec, Que	29.67	29.99	+.04	64.4	+ 1.3	73.1	55.6	2.32	−1.10	
Montreal, Que	......	......	.....	......	......	...	......	.....	....	....
Bissett, Ont	29.44	29.94	.00	64.5	+ 3.0	79.1	49.8	4.28	+1.35	
Ottawa, Ont	29.67	29.98	+.04	69.2	+ 4.4	78.8	59.5	2.72	....	
Kingston, Ont	29.71	30.02	+.05	70.2	+ 3.2	78.5	61.9	1.23	−0.76	
Toronto, Ont	29.65	30.02	+.03	72.8	+ 6.8	83.1	62.5	2.74	+0.16	
White River, Ont	28.69	30.00	+.02	63.3	+ 6.9	75.5	51.2	3.94	+0.88	
Port Stanley, Ont	29.41	30.03	+.04	71.6	+ 5.7	80.9	62.3	2.92	+0.58	
Saugeen, Ont	29.32	30.02	+.01	70.4	+ 6.6	79.6	61.2	2.67	+0.89	
Parry Sound, Ont	29.31	30.01	+.04	69.0	+ 5.5	79.5	58.6	1.11	−1.57	...
Port Arthur, Ont	29.25	29.93	.00	63.5	+ 4.0	71.8	55.1	6.77	+4.40	....
Winnipeg, Man	29.09	29.89	−.02	67.4	+ 4.0	79.4	55.4	3.66	+0.20	....
Minnedosa, Man	28.11	29.86	−.03	65.0	+ 5.6	75.8	54.2	4.56	+2.70	....
Qu'Appelle, Assin	27.63	29.82	−.08	62.5	+ 1.0	74.8	50.2	3.05	+1.58	....
Medicine Hat, Assin.	27.60	29.82	−.08	63.4	− 2.3	77.8	49.0	5.65	+4.66	....
Swift Current, Assin.	27.34	29.85	−.07	62.9	− 1.1	76.2	49.6	2.75	+1.01	....
Calgary, Alberta	26.35	29.81	−.09	55.1	− 4.3	69.2	41.0	1.29	−0.48	4.1
Banff, Alberta	25.32	29.89	......	51.2	− 5.1	62.6	39.8	3.17	+1.85	1.6
Edmonton, Alberta	27.55	29.81	−.10	56.1	− 2.7	67.0	45.2	4.18	+2.35	1.0
Prince Albert, Sask	28.31	29.82	......	58.4	− 0.5	69.1	47.6	6.04	+4.62	....
Battleford, Sask	28.15	29.85	......	60.5	− 2.1	71.1	49.9	5.24	+3.46	....
Kamloops, B. C	28.71	29.96	......	62.3	− 6.3	71.7	53.0	2.22	+1.66	....
Victoria, B. C	29.91	30.00	......	59.3	......	66.3	52.4	0.61	......	....
Barkerville, N. W. T.	25.63	29.88	......	50.7	− 5.6	60.9	40.4	8.50	+5.66	2.0
Hamilton, Bermuda.	29.91	30.07	−.03	79.4	− 0.2	84.9	73.9	6.80	+0.70	....

TABLE XI.—*Heights of rivers referred to zeros of gages, August, 1900.*

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water. Height.	Highest water. Date.	Lowest water. Height.	Lowest water. Date.	Mean stage.	Monthly range.
	Miles.	Feet.	Feet.		Feet.		Feet.	Feet.
Mississippi River.								
St. Paul, Minn	1,954	14	5.5	30	1.0	5-7	3.1	4.5
Reeds Landing, Minn	1,884	12	4.8	29, 30	1.0	11	2.9	3.8
La Crosse, Wis	1,819	12	5.8	30, 31	2.5	11-13	3.9	3.3
Prairie du Chien	1,759	18	4.9	31	2.2	12-14	3.3	2.7
Dubuque, Iowa	1,699	15	4.5	31	2.3	11	3.3	2.2
Leclaire, Iowa	1,609	10	3.2	1	1.5	11-13	2.2	1.7
Davenport, Iowa	1,593	15	3.9	1	2.2	11	3.0	1.7
Muscatine, Iowa	1,562	16	5.1	1	2.9	11, 12	3.9	2.2
Galland, Iowa	1,472	8	2.6	1	1.2	13, 14	1.8	1.4
Keokuk, Iowa	1,463	15	4.7	20	1.6	13, 14	3.2	3.1
Hannibal, Mo	1,402	13	6.1	21	2.6	15	4.4	3.5
Grafton, Ill	1,306	23	7.9	23	4.2	16	6.1	3.7
St. Louis, Mo	1,264	30	11.4	1	5.1	17	8.1	6.3
Chester, Ill	1,189	35	8.7	1	3.5	17, 18	5.9	5.2
Memphis, Tenn	843	33	11.2	6	2.8	22, 23	6.6	8.4
Helena, Ark	767	42	17.6	6,7	6.2	24	11.8	11.4
Arkansas City, Ark	635	42	18.4	7,8	5.8	26	12.7	12.6
Greenville, Miss	595	42	14.9	8	5.4	26	10.4	9.5
Vicksburg, Miss	474	45	17.0	8,9	4.3	27, 28	11.5	12.7
New Orleans, La	108	16	6.3	6	3.3	26	5.0	3.0
Missouri River.								
Bismarck, N. Dak	1,309	14	4.5	17	1.4	31	2.3	3.1
Pierre, S. Dak	1,114	14	5.6	21	2.6	8-10	3.1	3.0
Sioux City, Iowa	784	19	8.0	27	5.4	13, 14	6.1	2.6
Omaha, Nebr	669	18	8.8	28	6.8	10-13	7.5	2.0
St. Joseph, Mo	481	10	4.7	14	2.2	12	3.5	2.5
Kansas City, Mo	388	21	10.9	31	7.0	12, 13	9.2	3.9
Boonville, Mo	199	20	9.5	1	6.3	15	7.9	3.2
Hermann, Mo	103	24	9.1	1	5.9	15, 16	7.3	3.2
Illinois River.								
Peoria, Ill	135	14	8.1	17, 18	6.7	11-13	7.5	1.4
Youghiogheny River.								
Confluence, Pa	59	10	2.8	1	0.2	30, 31	0.9	2.6
West Newton, Pa	15	23	2.2	1	0.2	10-13, 28-31	0.5	2.0
Allegheny River.								
Warren, Pa	177	14	0.1	1-3, 24, 25	0.0	4-23, 26-31	0.0	0.1
Oil City, Pa	123	13	1.0	31	0.2	11-16, 20-22	0.4	0.8
Parker, Pa	73	20	1.0	25, 26	− 0.1	12, 13	0.4	1.1
Monongahela River.								
Weston, W. Va	161	18	0.0	23	− 1.0	10-15	−0.6	1.0
Fairmont, W. Va	119	25	1.6	1	− 0.2	12-19	0.3	1.8
Greensboro, Pa	81	18	9.0	1	6.5	11-17	7.0	2.5
Lock No. 4, Pa	40	28	9.2	1	5.6	9	7.1	3.6
Conemaugh River.								
Johnstown, Pa	64	7	3.5	21	0.9	20	1.7	2.6
Red Bank Creek.								
Brookville, Pa	35	8	0.3	28, 29	− 0.5	11-21	−0.3	0.8
Beaver River.								
Ellwood Junction, Pa	10	14	2.8	1-6	2.2	19	2.5	0.6
Great Kanawha River.								
Charleston, W. Va	61	30	6.9	28	3.5	1	5.5	3.4
New River.								
Hinton, W. Va	95	14	1.9	1	1.0	13-17, 19, 20, 31	1.2	0.9
Cheat River.								
Rowlesburg, W. Va	36	14	3.5	1	− 0.6	13	1.5	4.1
Ohio River.								
Pittsburg, Pa	966	22	6.6	1	4.7	3	5.7	1.9
Davis Island Dam, Pa	960	25	5.5	1	1.6	16	2.7	3.9
Wheeling, W. Va	875	36	6.5	2	1.2	14	2.8	5.3
Parkersburg, W. Va	785	36	7.5	1	2.1	15, 16	4.4	5.4
Point Pleasant, W. Va	703	39	7.3	1	1.8	15	3.3	5.5
Huntington, W. Va	660	50	11.4	1	3.2	16	5.9	8.2
Catlettsburg, Ky	651	50	11.1	1	2.1	16	4.7	9.0
Portsmouth, Ohio	612	50	12.0	1	3.0	15, 16	6.0	9.0
Cincinnati, Ohio	499	50	15.7	3	4.9	15, 16	7.9	10.8
Madison, Ind	413	46	13.5	4	5.2	15, 16	8.0	8.3
Louisville, Ky	367	28	7.6	5	3.2	15, 16	4.8	4.4
Evansville, Ind	184	35	11.4	3	4.1	19-21	6.6	7.3
Paducah, Ky	47	40	12.1	4	3.2	21	6.2	8.9
Cairo, Ill	1,073	45	18.8	4	6.9	20	12.0	11.9
Muskingum River.								
Zanesville, Ohio	70	20	12.5	25	5.8	8	7.5	6.7
Scioto River.								
Columbus, Ohio	110	17	3.2	26	1.8	24	2.1	1.4
Miami River.								
Dayton, Ohio	69	18	3.8	26	0.8	11-15	1.5	3.0
Wabash River.								
Mount Carmel, Ill	50	15	5.4	1	2.1	13, 14	3.6	3.3
Licking River.								
Falmouth, Ky	30	25	5.8	1	1.0	12, 13	2.4	4.8
Clinch River.								
Speers Ferry, Va	156	20	0.6	1, 24	− 0.6	12	0.0	1.2
Clinton, Tenn	46	25	6.4	1	2.5	13	3.6	3.9
Tennessee River.								
Knoxville, Tenn	614	29	2.7	1	0.4	22, 23	1.0	2.3
Kingston, Tenn	534	25	3.8	1	0.8	13, 14, 24, 25	1.5	3.0
Chattanooga, Tenn	430	33	6.2	1	1.7	23	2.7	4.5
Bridgeport, Ala	390	24	5.0	1	0.5	24, 25	1.4	4.5
Florence, Ala	230	16	5.6	1	0.7	27, 28	1.7	4.9
Riverton, Ala	190	25	6.7	1,2	− 0.3	27-29	1.4	7.0
Johnsonville, Tenn	94	21	7.5	3	1.5	20, 29, 30	3.1	6.0

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water. Height.	Highest water. Date.	Lowest water. Height.	Lowest water. Date.	Mean stage.	Monthly range.
	Miles.	Feet.	Feet.		Feet.		Feet.	Feet.
Cumberland River.								
Burnside, Ky	434	50	7.0	1	0.3	27	1.4	6.7
Carthage, Tenn	257	40	10.0	1	0.9	28, 29	2.4	9.1
Nashville, Tenn	175	40	16.9	1	1.5	29-31	4.3	15.4
Arkansas River.								
Wichita, Kans	726	10	1.9	1-3	1.2	27	1.6	0.7
Webbers Falls, Ind. T	413	23	3.6	31	2.2	14	2.5	1.4
Fort Smith, Ark	351	22	4.5	1	1.6	23, 24	2.9	2.9
Dardanelle, Ark	256	21	4.2	1, 28	1.0	25	2.2	3.2
Little Rock, Ark	176	23	6.3	29	2.1	20	3.5	4.2
White River.								
Newport, Ark	150	26	3.0	31	0.7	20-26	1.4	2.3
Yazoo River.								
Yazoo City, Miss	80	25	18.7	1	0.6	30, 31	8.2	18.1
Red River.								
Arthur City, Tex	688	27	10.2	1	5.1	30, 31	6.8	5.1
Fulton, Ark	565	28	12.4	3	4.8	31	7.4	7.6
Shreveport, La	449	29	8.8	1	1.8	28, 31	4.5	7.0
Alexandria, La	139	33	8.7	1	0.5	31	3.9	8.2
Ouachita River.								
Camden, Ark	340	39	14.0	30	3.0	26-28	5.7	11.0
Monroe, La	100	40	7.6	2,3	0.9	30, 31	3.9	6.7
Atchafalaya River.								
Melville, La	100	31	19.8	7-10	7.6	31	15.3	12.2
Susquehanna River.								
Wilkesbarre, Pa	178	14	0.0	1	− 2.0	8-13, 17-31	−1.7	2.0
Harrisburg, Pa	70	17	1.5	28	0.2	14-20	0.7	1.3
W. Br. of Susquehanna.								
Williamsport, Pa	35	20	1.0	23, 27, 29, 30	0.1	12, 13, 15, 16	0.5	0.9
Juniata River.								
Huntingdon, Pa	80	24	2.9	1-31	2.9	1-31	2.9	0.0
Potomac River.								
Harpers Ferry, W. Va	170	16	1.8	1-4	0.5	24, 25, 31	1.0	1.3
James River.								
Lynchburg, Va	257	18	0.4	1	−0.3	13-15, 18-22	0.0	0.7
Richmond, Va	110	12	0.0	2	− 1.2	5-15, 20-28	−1.0	1.2
Roanoke River.								
Weldon, N. C	90	40	8.2	1	7.0	15, 16, 18-20, 22	7.3	1.2
Cape Fear River.								
Fayetteville, N. C	100	38	4.5	18	0.5	17	1.7	4.0
Lumber River.								
Fairbluff, N. C	10	6	0.2	8	− 1.4	28	−0.8	1.6
Edisto River.								
Edisto, S. C	75	6	4.1	4	0.5	25-29	2.0	3.6
Pedee River.								
Cheraw, S. C	145	27	2.5	25	0.6	14-17	1.1	1.9
Black River.								
Kingstree, S. C	60	12	4.9	4	−0.2	26-31	1.1	5.1
Lynch Creek.								
Effingham, S. C	35	12	6.2	2	1.6	23, 24	2.7	4.6
Santee River.								
St. Stephens, S. C	50	12	6.7	3, 4	−0.2	25	2.1	6.9
Congaree River.								
Columbia, S. C	37	15	1.5	31	−0.1	8	0.3	1.6
Wateree River.								
Camden, S. C	45	24	7.6	1	2.3	17	3.6	5.3
Waccamaw River.								
Conway, S. C	40	7	2.6	2	0.9	21, 22, 26-28	1.6	1.7
Savannah River.								
Calhoun Falls, S. C	347	......	3.2	1	1.9	24	2.5	1.3
Augusta, Ga	268	32	12.0	1	6.0	13	7.2	6.0
Broad River.								
Carlton, Ga	30	.....	4.0	13	2.2	22, 24, 25, 28, 29, 31	2.6	1.8
Flint River.								
Albany, Ga	80	20	4.2	1, 2	0.8	9, 12-14, 27, 28	1.5	3.4
Chattahoochee River.								
Westpoint, Ga	239	20	6.4	1	2.8	12, 19-22	3.2	3.6
Ocmulgee River.								
Macon, Ga	125	20	6.1	1	2.2	23	3.1	3.9
Oconee River.								
Dublin, Ga	60	30	5.0	2	0.1	14, 21	1.2	4.9
Coosa River.								
Rome, Ga	225	30	3.4	1	1.5	29-31	2.0	1.9
Gadsden, Ala	144	18	5.6	1	0.9	10-17, 25	1.4	4.7
Alabama River.								
Montgomery, Ala	265	35	10.6	1	2.2	14, 15	3.6	8.4
Selma, Ala	212	35	14.0	1	2.3	21	4.7	11.7
Tombigbee River.								
Columbus, Miss	303	33	5.8	1	−2.7	14	−1.2	8.5
Demopolis, Ala	155	35	18.2	2	1.2	20	5.2	17.0
Black Warrior River.								
Tuscaloosa, Ala	129	43	9.8	1	1.4	15, 18	3.3	8.4
Brazos River.								
Kopperl, Tex.*	270	25	10.1	1	6.6	24-28	7.8	3.5
Waco, Tex	166	40	15.1	1	8.8	26	11.3	6.3
Columbia River.								
Umatilla, Oreg	......	......	2.8	15	− 1.0	29-31	0.0	3.8
The Dalles, Oreg	......	22	3.8	2, 5	0.5	27-29	2.1	3.3
Willamette River.								
Albany, Oreg	99	20	1.4	1-4	0.7	25-31	1.0	0.7
Portland, Oreg	10	15	7.2	1, 2	3.7	21	5.3	3.5
Sacramento River.								
Red Bluff, Cal	241	23	− 0.5	1-31	− 0.5	1-31	−0.5	0.0
Sacramento, Cal	70	29	8.3	1	7.7	31	7.9	0.6

* 19 days only.

Chart I. Tracks of Centers of High Areas. August, 1900.

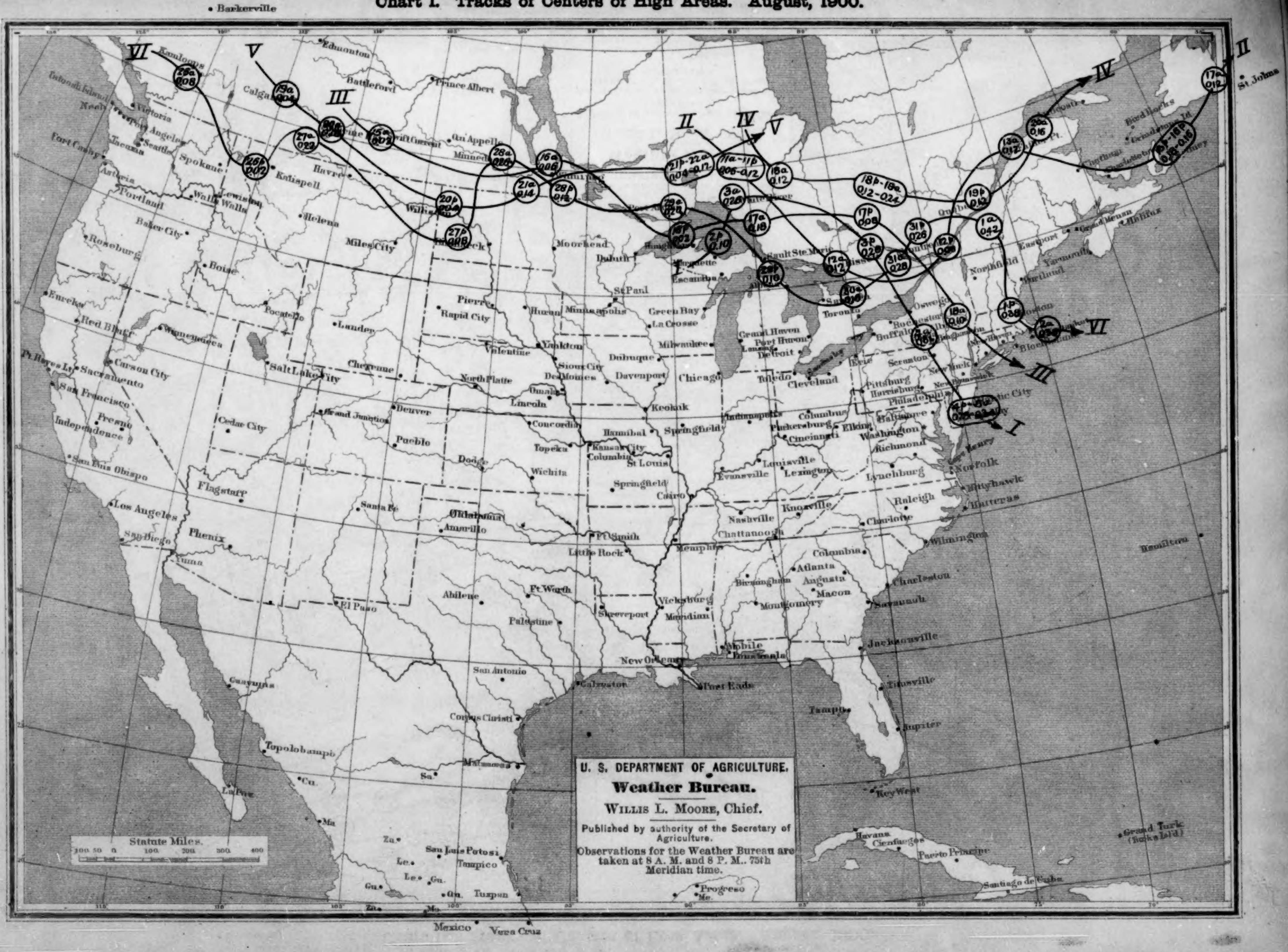

Chart II. Tracks of Centers of Low Areas. August, 1900.

Chart III. Total Precipitation. August, 1900.

Chart III. Total Precipitation. August, 1900.

Chart IV. Sea-Level Pressure and Temperature; Resultant Surface Winds. August, 1900.

Chart V. Hydrographs for Seven Principal Rivers of the United States. August, 1900.

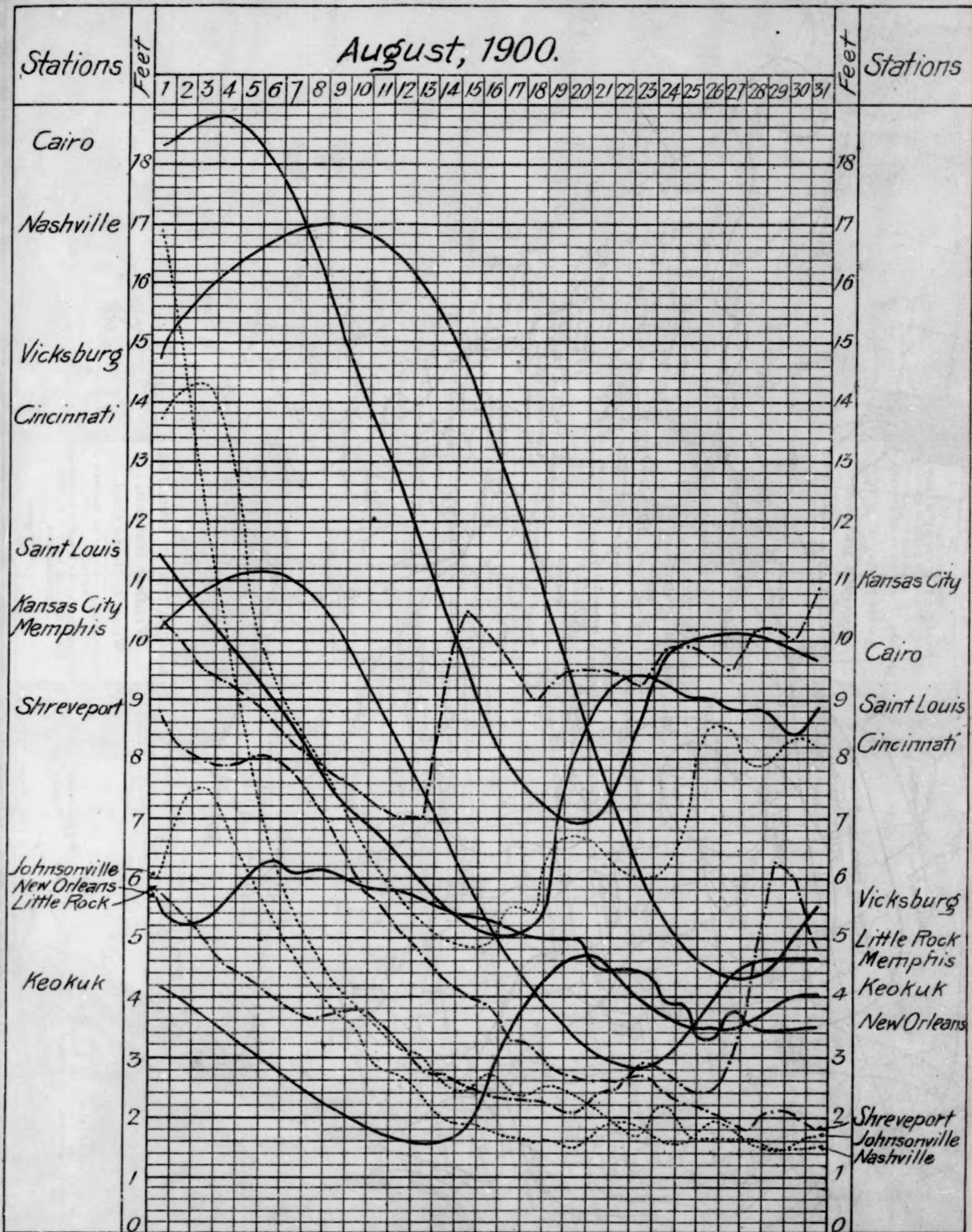

Chart VI. Surface Temperatures; Maximum, Minimum, and Mean. August, 1900.

Chart VII. Percentage of Sunshine. August, 1900.

Chart VII. Percentage of Sunshine. August, 1900.

Chart VIII. West Indian Monthly Isobars, Isotherms, and Resultant Winds. August, 1900.